

SEQUENCE LISTING

<110> The Procter & Gamble Company  
Isfort, Robert  
Sheldon, Russell

<120> Methods for Identifying Compounds for Regulating Muscle Mass or Function Using Corticotropin Releasing Factor Receptors

<130> 8448R

<140> Not Yet Assigned  
<141> 2003-08-27

<150> US 09/799,978  
<151> 2001-03-06

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<170> PatentIn version 3.0

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Val	Ala	Trp	Ala	Ile	Gly	Lys	Leu	Tyr	Tyr	Asp	Asn	Glu	Lys	Cys	Trp	
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270							275						280			
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285

290

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Ala Phe Val Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn  
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Val Gly Trp Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val  
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Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala  
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Ile Val Leu Thr Tyr Ser Thr Asp Arg Leu Arg Lys Trp Met Phe Ile  
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Cys Ile Gly Trp Gly Val Pro Phe Pro Ile Ile Val Ala Trp Ala Ile  
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Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu  
225 230 235 240

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Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala  
260 265 270

Val Lys Ala Thr Leu Val Leu Pro Leu Leu Gly Ile Thr Tyr Met  
275 280 285

Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val Val Phe  
290 295 300

Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val Ser  
305 310 315 320

Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Ile Arg Lys  
325 330 335

Arg Trp His Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val Ala  
340 345 350

Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His Ser  
355 360 365

Ile Lys Gln Ser Thr Ala Val  
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Met Gly Gly His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu  
1 5 10 15

48

ggg ctg aac ccc gtc tct gcc tcc ctc cag gac cag cac tgc gag agc  
Gly Leu Asn Pro Val Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser  
20 25 30

96

ctg tcc ctg gcc agc aac atc tca gga ctg cag tgc aac gca tcc gtg  
Leu Ser Leu Ala Ser Asn Ile Ser Gly Leu Gln Cys Asn Ala Ser Val  
35 40 45

144

gac ctc att ggc acc tgc tgg ccc cgc agc cct gcg ggg cag cta gtg  
Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val  
50 55 60

192

gtt cgg ccc tgc cct gcc ttt ttc tat ggt gtc cgc tac aat acc aca  
Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
65 70 75 80

240

aac aat ggc tac cgg gag tgc ctg gcc aat ggc agc tgg gcc gcc cgc  
Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg  
85 90 95

288

gtg aat tac tcc gag tgc cag gag atc ctc aat gag gag aaa aaa agc  
Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser  
100 105 110

336

aag gtg cac tac cat gtc gca gtc atc atc aac tac ctg ggc cac tgt  
Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

384

atc tcc ctg gtg gcc ctc ctg gtg gcc ttt gtc ctc ttt ctg cgg ctc  
Ile Ser Leu Val Ala Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

432

agg agc atc cgg tgc ctg cga aac atc atc cac tgg aac ctc atc tcc  
Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

480

gcc ttc atc ctg cgc aac gcc acc tgg ttc gtg gtc cag cta acc atg  
Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met  
165 170 175

528

agc ccc gag gtc cac cag agc aac gtg ggc tgg tgc agg ttg gtg aca  
Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr  
180 185 190

576

gcc gcc tac aac tac ttc cat gtg acc aac ttc ttc tgg atg ttc ggc Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205	624
gag ggc tgc tac ctg cac aca gcc atc gtg ctc acc tac tcc act gac Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp 210 215 220	672
cgg ctg cgc aaa tgg atg ttc atc tgc att ggc tgg ggt gtg ccc ttc Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe 225 230 235 240	720
ccc atc att gtg gcc tgg gcc att ggg aag ctg tac tac gac aat gag Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255	768
aag tgc tgg ttt ggc aaa agg cct ggg gtg tac acc gac tac atc tac Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr 260 265 270	816
cag ggc ccc atg atc ctg gtc ctg atc aat ttc atc ttc ctt ttc Gln Gly Pro Met Ile Leu Val Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
aac atc gtc cgc atc ctc atg acc aag ctc cgg gca tcc acc acg tct Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser 290 295 300	912
gag acc att cag tac agg aag gct gtg aaa gcc act ctg gtg ctg ctg Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
ccc ctc ctg ggc atc acc tac atg ctg ttc ttc gtc aat ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu 325 330 335	1008
gat gag gtc tcc cgg gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu 340 345 350	1056
tcc ttc cag gtc cgt tct gcc atc cgg aag agg tgg cac cgg tgg cag Ser Phe Gln Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln 355 360 365	1104
gac aag cac tcg atc cgt gcc cga gtg gcc cgt gcc atg tcc atc ccc Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro 370 375 380	1152
acc tcc cca acc cgt gtc agc ttt cac agc atc aag cag tcc aca gca Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala 385 390 395 400	1200
gtc tga Val	1206

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Met Gly Gly His Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu  
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Gly Leu Asn Pro Val Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser  
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Leu Ser Leu Ala Ser Asn Ile Ser Gly Leu Gln Cys Asn Ala Ser Val  
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val  
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg  
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser  
100 105 110

Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met  
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr  
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
210 215 220

Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe

225	230	235	240
Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu			
245		250	255
Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr			
260		265	270
Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe			
275		280	285
Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser			
290		295	300
Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu			
305		310	320
Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu			
325		330	335
Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu			
340		345	350
Ser Phe Gln Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln			
355		360	365
Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro			
370		375	380
Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala			
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400			

Val

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48

gag	ctg	gct	gaa	gag	ctg	ctc	ttg	gac	ggc	tgg	ggg	cca	ccc	ctg	gac	96
Ala	Leu	Ala	Glu	Glu	Leu	Leu	Asp	Gly	Trp	Gly	Pro	Pro	Leu	Asp		
							25				30					
ccc	gag	ggt	ccc	tac	tcc	tac	tgc	aac	acg	acc	ttg	gac	cag	atc	gga	144
Pro	Glu	Gly	Pro	Tyr	Ser	Tyr	Cys	Asn	Thr	Leu	Asp	Gln	Ile	Gly		
							40				45					
acg	tgc	tgg	ccc	cgc	agc	gct	gcc	gga	gcc	ctc	gtg	gag	agg	ccg	tgc	192
Thr	Cys	Trp	Pro	Arg	Ser	Ala	Ala	Gly	Ala	Leu	Val	Glu	Arg	Pro	Cys	
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Pro	Glu	Tyr	Phe	Asn	Gly	Val	Lys	Tyr	Asn	Thr	Arg	Asn	Ala	Tyr		
							70				75			80		
cga	gaa	tgc	ttg	gag	aat	ggg	acg	tgg	gcc	tca	aag	atc	aac	tac	tca	288
Arg	Glu	Cys	Leu	Glu	Asn	Gly	Thr	Trp	Ala	Ser	Lys	Ile	Asn	Tyr	Ser	
							85				90			95		
cag	tgt	gag	ccc	att	ttg	gat	gac	aag	cag	agg	aag	tat	gac	ctg	cac	336
Gln	Cys	Glu	Pro	Ile	Leu	Asp	Asp	Lys	Gln	Arg	Lys	Tyr	Asp	Leu	His	
							100				105			110		
tac	cgc	atc	gcc	ctt	gtc	gtc	aac	tac	ctg	ggc	cac	tgc	gta	tct	gtg	384
Tyr	Arg	Ile	Ala	Leu	Val	Val	Asn	Tyr	Leu	Gly	His	Cys	Val	Ser	Val	
							115				120			125		
gca	gcc	ctg	gtg	gcc	ttc	ctg	ctt	ttc	ctg	gcc	ctg	cg	agc	att		432
Ala	Ala	Leu	Val	Ala	Ala	Phe	Leu	Leu	Phe	Leu	Ala	Leu	Arg	Ser	Ile	
							130				135			140		
cgc	tgt	ctg	cg	aat	gtg	att	cac	tgg	aac	ctc	atc	acc	acc	ttt	atc	480
Arg	Cys	Leu	Arg	Asn	Val	Ile	His	Trp	Asn	Leu	Ile	Thr	Thr	Phe	Ile	
							145				150			155		160
ctg	cga	aat	gtc	atg	tgg	ttc	ctg	ctg	cag	ctc	gtt	gac	cat	gaa	gtg	528
Leu	Arg	Asn	Val	Met	Trp	Phe	Leu	Leu	Gln	Leu	Val	Asp	His	Glu	Val	
							165				170			175		
cac	gag	agc	aat	gag	gtc	tgg	tgc	cac	tgc	atc	acc	acc	atc	ttc	aac	576
His	Glu	Ser	Asn	Glu	Val	Trp	Cys	His	Cys	Ile	Thr	Thr	Ile	Phe	Asn	
							180				185			190		
tac	ttc	gtg	gtg	acc	aac	ttc	ttc	tgg	atg	ttt	gtg	gaa	ggc	tgc	tac	624
Tyr	Phe	Val	Val	Thr	Asn	Phe	Phe	Trp	Met	Phe	Val	Glu	Gly	Cys	Tyr	
							195				200			205		
ctg	cac	acg	gcc	att	gtc	atg	acc	tac	tcc	act	gag	cg	ctg	cg	aag	672
Leu	His	Thr	Ala	Ile	Val	Met	Thr	Tyr	Ser	Thr	Glu	Arg	Leu	Arg	Lys	
							210				215			220		
tgc	ctc	ttc	ctc	atc	gga	tgg	tgc	atc	ccc	ttc	ccc	atc	atc	gtc		720
Cys	Leu	Phe	Leu	Phe	Ile	Gly	Trp	Cys	Ile	Pro	Phe	Pro	Ile	Ile	Val	
							225				230			235		240
gcc	tgg	gcc	atc	ggc	aag	ctc	tac	tat	gag	aat	gaa	cag	tgc	tgg	ttt	768
Ala	Trp	Ala	Ile	Gly	Lys	Leu	Tyr	Tyr	Glu	Asn	Glu	Gln	Cys	Trp	Phe	
							245				250			255		
ggc	aag	gag	cct	ggc	gac	ctg	gtg	gac	tac	atc	tac	caa	ggc	ccc	atc	816

Gly	Lys	Glu	Pro	Gly	Asp	Leu	Val	Asp	Tyr	Ile	Tyr	Gln	Gly	Pro	Ile
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att ctc gtg ctc ctg atc aat ttc gta ttt ctg ttc aac atc gtc agg															864
Ile	Leu	Val	Leu	Leu	Ile	Asn	Phe	Val	Phe	Leu	Phe	Asn	Ile	Val	Arg
275								280				285			
atc cta atg aca aag tta cgc gcg tcc acc aca tcc gag aca atc cag															912
Ile	Leu	Met	Thr	Lys	Leu	Arg	Ala	Ser	Thr	Ser	Glu	Thr	Ile	Gln	
290							295				300				
tac agg aag gca gtg aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc															960
Tyr	Arg	Lys	Ala	Val	Lys	Ala	Thr	Leu	Val	Leu	Leu	Pro	Leu	Leu	Gly
305							310				315				320
atc acc tac atg ctc ttc gtc aat ccc ggg gag gac gac ctg tca															1008
Ile	Thr	Tyr	Met	Leu	Phe	Phe	Val	Asn	Pro	Gly	Glu	Asp	Asp	Leu	Ser
325							330				335				
cag atc atg ttc atc tat ttc aac tcc ttc ctg cag tcg ttc cag ggt															1056
Gln	Ile	Met	Phe	Ile	Tyr	Phe	Asn	Ser	Phe	Leu	Gln	Ser	Phe	Gln	Gly
340							345				350				
ttc ttc gtg tct gtc ttc tac tgc ttc aat gga gag gtg cgc tca															1104
Phe	Phe	Val	Ser	Val	Phe	Tyr	Cys	Phe	Phe	Asn	Gly	Glu	Val	Arg	Ser
355							360				365				
gcc gtg agg aag agg tgg cac cgc tgg cag gac cat cac tcc ctt cga															1152
Ala	Val	Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	His	His	Ser	Leu	Arg
370							375				380				
gtc ccc atg gcc cggttccatc atc cct aca tca ccc aca cggttccatc															1200
Val	Pro	Met	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser	Pro	Thr	Arg	Ile
385							390				395				400
agc ttc cac agc atc aag cag acg gcc gct gtg tga cccctcggtc															1246
Ser	Phe	His	Ser	Ile	Lys	Gln	Thr	Ala	Ala	Val					
405							410								
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gcaggctctc	gtggggcagg	agatgggagg	ggagagacca	gctctccagc	ctggcaggaa										1366
agaggggtg	cggcagccaa	ggggactgc	aagggacagg	gatgagtggg	ggccaccagg										1426
ctcagcgcaa	gaggaagcag	aggaaattca	caggacccc	tgagaagagc	cagtcagatg										1486
tctgcaggca	tttgcctatc	ccagcctctc	tggccagggc	cttactgggc	ccagagcaga										1546
gaaggacctg	tccaacacac	acagctattt	atagtagcag	acacagggct	cccctgccct										1606
actcatggag	ccagcagcca	ggcaatggtg	tggccctgca	ctggcccttg	gactccacac										1666
tcagtggtg	cctgcagttg	ggtgggttaa	cgc当地	aggatcagtt	tggctgcctt										1726
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cccagccatc	ctccccgcct	tggggctcc	atgaaggatg	caggcttcca	ggcctggcctt										1846
cctctttgg	gagaccctt	ctctgcctag	tccacagatt	aggcaatcaa	ggaagacgcc										1906

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Ala Leu Ala Glu Glu Leu Leu Asp Gly Trp Gly Pro Pro Leu Asp  
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Pro Glu Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly  
35 40 45

Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys  
50 55 60

Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr  
65 70 75 80

Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser  
85 90 95

Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His  
100 105 110

Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val Ser Val  
115 120 125

Ala Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile  
130 135 140

Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile  
145 150 155 160

Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His Glu Val  
165 170 175

His Glu Ser Asn Glu Val Trp Cys His Cys Ile Thr Thr Ile Phe Asn

180	185	190
Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr		
	200	205
195		
Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys		
	215	220
210		
Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val		
	230	235
225		240
Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe		
	245	255
Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile		
	260	270
Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg		
	275	285
Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln		
	290	295
Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly		
	305	310
Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser		
	325	330
Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly		
	340	345
Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser		
	355	360
Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser Leu Arg		
	370	375
Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile		
	385	390
Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val		
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	Met	Arg	Gly	Pro	Ser	Gly	Pro	Pro	Gly	Leu	Leu	Tyr	Val					
1				5							10							
cc	cca	cac	ctc	ctc	tgc	ctg	ctc	ctc	cca	ccg	ccg	ctc	caa	157				
Pro	His	Leu	Leu	Leu	Cys	Leu	Leu	Cys	Leu	Leu	Pro	Pro	Pro	Leu	Gln			
15				20						25								
ta	tac	gca	gcc	ggg	cag	agc	cag	atg	ccc	aaa	gac	cag	ccc	ctg	tgg	gca	205	
Tyr	Ala	Ala	Gly	Gln	Ser	Gln	Met	Pro	Lys	Asp	Gln	Pro	Leu	Trp	Ala			
30				35					40						45			
ct	ctt	ctg	gag	cag	tac	tgc	cac	acc	atc	atg	acc	ctc	acc	aac	ctc	tca	253	
Leu	Leu	Glu	Gln	Tyr	Cys	His	Thr	Ile	Met	Thr	Leu	Thr	Asn	Leu	Ser			
				50					55					60				
gg	gt	tt	cc	cc	tt	cc	tt	cc	tt	cc	tt	cc	tt	cc	tt	cc	301	
Gly	Pro	Tyr	Ser	Tyr	Cys	Asn	Thr	Thr	Leu	Asp	Gln	Ile	Gly	Thr	Cys			
				65				70				75						
tg	tgg	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	349	
Trp	Pro	Arg	Ser	Ala	Ala	Gly	Ala	Leu	Val	Glu	Arg	Pro	Cys	Pro	Glu			
				80				85				90						
ta	tac	t	tc	t	tc	t	tc	t	tc	t	tc	t	tc	t	tc	t	397	
Tyr	Phe	Asn	Gly	Val	Lys	Tyr	Asn	Thr	Thr	Arg	Asn	Ala	Tyr	Arg	Glu			
				95				100				105						
tg	tgc	tt	tg	gag	aat	ggg	acg	tgg	gcc	tca	aag	atc	aac	tac	tca	cag	tgt	445
Cys	Leu	Glu	Asn	Gly	Thr	Trp	Ala	Ser	Lys	Ile	Asn	Tyr	Ser	Gln	Cys			
				110				115			120				125			
ga	gag	ccc	att	ttg	aat	ggc	gtc	aag	tac	acc	cg	aat	gac	ctg	cac	tac	cgc	493
Glu	Pro	Ile	Leu	Asp	Asp	Lys	Gln	Arg	Lys	Tyr	Asp	Leu	His	Tyr	Arg			
				130					135				140					
at	atc	gc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	541	
Ile	Ala	Leu	Val	Val	Asn	Tyr	Leu	Gly	His	Cys	Val	Ser	Val	Ala	Ala			
				145				150				155						
ct	ct	gt	gt	cc	cc	tt	cc	tt	cc	589								
Leu	Val	Ala	Ala	Phe	Leu	Leu	Phe	Leu	Ala	Leu	Arg	Ser	Ile	Arg	Cys			
				160				165				170						
ct	cg	aa	gt	tt	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	637	
Leu	Arg	Asn	Val	Ile	His	Trp	Asn	Leu	Ile	Thr	Thr	Phe	Ile	Leu	Arg			
				175				180				185						
aa	at	gt	tt	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	cc	685	
Asn	Val	Met	Trp	Phe	Leu	Leu	Gln	Leu	Val	Asp	His	Glu	Val	His	Glu			
				190				195			200			205				



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Met Arg Gly Pro Ser Gly Pro Pro Gly Leu Leu Tyr Val Pro His Leu  
1 5 10 15

Leu Leu Cys Leu Leu Cys Leu Leu Pro Pro Pro Leu Gln Tyr Ala Ala  
20 25 30

Gly Gln Ser Gln Met Pro Lys Asp Gln Pro Leu Trp Ala Leu Leu Glu  
35 40 45

Gln Tyr Cys His Thr Ile Met Thr Leu Thr Asn Leu Ser Gly Pro Tyr  
50 55 60

Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Arg  
65 70 75 80

Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn  
85 90 95

Gly Val Lys Tyr Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu  
100 105 110

Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys Glu Pro Ile  
115 120 125

Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu  
130 135 140

Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala Leu Val Ala  
145 150 155 160

Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys Leu Arg Asn  
165 170 175

Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Val Met

180	185	190
Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu Ser Asn Glu		
195	200	205
Val Trp Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr		
210	215	220
Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile		
225	230	240
Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu Phe Leu Phe		
245	250	255
Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly		
260	265	270
Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly		
275	280	285
Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu		
290	295	300
Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys		
305	310	320
Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val		
325	330	335
Lys Ala Thr Leu Val Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu		
340	345	350
Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Met Phe Ile		
355	360	365
Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val		
370	375	380
Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg		
385	390	400
Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro Met Ala Arg		
405	410	415
Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile		
420	425	430

Lys Gln Thr Ala Ala Val  
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<212> DNA  
<213> Homo sapiens

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<222> (152)..(1345)

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caacacacac acatatgcca gggttggta a atg gga aga gag cct tgg cct 172  
Met Gly Arg Glu Pro Trp Pro  
1 5  
  
gaa gac agg gac ctg ggc ttt cct cag ctc ttc tgc caa ggt ccc tac 220  
Glu Asp Arg Asp Leu Gly Phe Pro Gln Leu Phe Cys Gln Gly Pro Tyr  
10 15 20  
  
tcc tac tgc aac acg acc ttg gac cag atc gga acg tgc tgg ccc cgc 268  
Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Arg  
25 30 35  
  
agc gct gcc gga gcc ctc gtg gag agg ccg tgc ccc gag tac ttc aac 316  
Ser Ala Ala Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn  
40 45 50 55  
  
ggc gtc aag tac aac acg acc cgg aat gcc tat cga gaa tgc ttg gag 364  
Gly Val Lys Tyr Asn Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu  
60 65 70  
  
aat ggg acg tgg gcc tca aag atc aac tac tca cag tgt gag ccc att 412  
Asn Gly Thr Trp Ala Ser Lys Ile Asn Tyr Ser Gln Cys Glu Pro Ile  
75 80 85  
  
ttg gat gac aag cag agg aag tat gac ctg cac tac cgc atc gcc ctt 460  
Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu  
90 95 100  
  
gtc gtc aac tac ctg ggc cac tgc gta tct gtg gca gcc ctg gtg gcc 508  
Val Val Asn Tyr Leu Gly His Cys Val Ser Val Ala Ala Leu Val Ala  
105 110 115  
  
gcc ttc ctg ctt ttc ctg gcc ctg cgg agc att cgc tgt ctg cgg aat 556  
Ala Phe Leu Leu Phe Leu Ala Leu Arg Ser Ile Arg Cys Leu Arg Asn  
120 125 130 135  
  
gtg att cac tgg aac ctc atc acc acc ttt atc ctg cga aat gtc atg 604  
Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Val Met  
140 145 150  
  
tgg ttc ctg ctg cag ctc gtt gac cat gaa gtg cac gag agc aat gag 652

Trp Phe Leu Leu Gln Leu Val Asp His Glu Val His Glu Ser Asn Glu  
 155 160 165 700  
 gtc tgg tgc cgc tgc atc acc acc atc ttc aac tac ttc gtg gtg acc  
 Val Trp Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr  
 170 175 180 748  
 aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac ctg cac acg gcc att  
 Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile  
 185 190 195 796  
 gtc atg acc tac tcc act gag cgc ctg cgc aag tgc ctc ttc ctc ttc  
 Val Met Thr Tyr Ser Thr Glu Arg Leu Arg Lys Cys Leu Phe Leu Phe  
 200 205 210 215  
 atc gga tgg tgc atc ccc ttc ccc atc atc gtc gcc tgg gcc atc ggc  
 Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly  
 220 225 230 844  
 aag ctc tac tat gag aat gaa cag tgc tgg ttt ggc aag gag cct ggc  
 Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly  
 235 240 245 892  
 gac ctg gtg gac tac atc tac caa ggc ccc atc att ctc gtg ctc ctg  
 Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu  
 250 255 260 940  
 atc aat ttc gta ttt ctg ttc aac atc gtc agg atc cta atg aca aag  
 Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys  
 265 270 275 988  
 tta cgc gcg tcc acc aca tcc gag aca atc cag tac agg aag gca gtg  
 Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val  
 280 285 290 295 1036  
 aag gcc acc ctg gtg ctc ctg ccc ctc ctg ggc atc acc tac atg ctc  
 Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu  
 300 305 310 1084  
 ttc ttc gtc aat ccc ggg gag gac gac ctg tca cag atc atg ttc atc  
 Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Met Phe Ile  
 315 320 325 1132  
 tat ttc aac tcc ttc ctg cag tcg ttc cag ggt ttc ttc gtg tct gtc  
 Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val  
 330 335 340 1180  
 ttc tac tgc ttc ttc aat gga gag gtg cgc tca gcc gtg agg aag agg  
 Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg  
 345 350 355 1228  
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 Trp His Arg Trp Gln Asp His His Ser Leu Arg Val Pro Met Ala Arg  
 360 365 370 375 1276  
 gcc atg tcc atc cct aca tca ccc aca cgg atc agc ttc cac agc atc  
 Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile  
 380 385 390 1324  
 aag cag acg gcc gct gtg tga cccctcggtc gcccacctgc acagctcccc  
 Lys Gln Thr Ala Ala Val 1375

tgtcctcctc caccttcttc ctctgggttc tctgtgctgg gcaggcttc gtggggcagg 1435  
 agatggagg ggagagacca gctctccagc ctggcaggaa agagggggtg cggcagccaa 1495  
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 agg 1558

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 <211> 397  
 <212> PRT  
 <213> Homo sapiens

<400> 14

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Ile Gly Thr Cys Trp Pro Arg Ser Ala Ala Gly Ala Leu Val Glu Arg  
 35 40 45

Pro Cys Pro Glu Tyr Phe Asn Gly Val Lys Tyr Asn Thr Thr Arg Asn  
 50 55 60

Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Lys Ile Asn  
 65 70 75 80

Tyr Ser Gln Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp  
 85 90 95

Leu His Tyr Arg Ile Ala Leu Val Val Asn Tyr Leu Gly His Cys Val  
 100 105 110

Ser Val Ala Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Ala Leu Arg  
 115 120 125

Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr  
 130 135 140

Phe Ile Leu Arg Asn Val Met Trp Phe Leu Leu Gln Leu Val Asp His  
 145 150 155 160

Glu Val His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile  
 165 170 175

Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly  
180 185 190

Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu Arg Leu  
195 200 205

Arg Lys Cys Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Phe Pro Ile  
210 215 220

Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys  
225 230 235 240

Trp Phe Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly  
245 250 255

Pro Ile Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile  
260 265 270

Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr  
275 280 285

Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu  
290 295 300

Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp  
305 310 315 320

Leu Ser Gln Ile Met Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe  
325 330 335

Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val  
340 345 350

Arg Ser Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp His His Ser  
355 360 365

Leu Arg Val Pro Met Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr  
370 375 380

Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
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<210> 15  
<211> 1411  
<212> DNA  
<213> Rattus norvegicus

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<221> CDS
<222> (80)..(1327)

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Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys
1 5 10

gcc ctt ctc ctt ctg ggg ctg aac cct gtg tcc acc tcc ctt cag gat 160
Ala Leu Leu Leu Gly Leu Asn Pro Val Ser Thr Ser Leu Gln Asp
15 20 25

cag cgc tgt gag aac ctg tcc ctg acc agc aat gtt tct ggc ctg cag 208
Gln Arg Cys Glu Asn Leu Ser Leu Thr Ser Asn Val Ser Gly Leu Gln
30 35 40

tgc aat gca tcc gtg gac ctc att ggc acc tgc tgg ccc cgg agc cct 256
Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro
45 50 55

gcu ggc cag ttg gtg gtc cga ccc tgc cct gcc ttt ttc tac ggt gtc 304
Ala Gly Gln Leu Val Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val
60 65 70 75

cgc tac aac acg aca aac aat ggc tac cgg gag tgc ctg gcc aac ggc 352
Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly
80 85 90

agc tgg gca gcc cgt gtg aat tat tct gag tgc cag gag att ctc aac 400
Ser Trp Ala Ala Arg Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn
95 100 105

gaa gag aag aag agc aaa gta cac tac cat gtt gca gtc atc atc aac 448
Glu Glu Lys Lys Ser Lys Val His Tyr His Val Ala Val Ile Ile Asn
110 115 120

tac ctg ggt cac tgc atc tcc ctg gta gcc ctc ctg gtg gcc ttt gtc 496
Tyr Leu Gly His Cys Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val
125 130 135

ctc ttc ttg cgg ctc agg agc atc cgg tgc ctg aga aac atc atc cac 544
Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His
140 145 150 155

tgg aac ctc atc tcg gct ttc atc cta cgc aac gcc acg tgg ttt gtg 592
Trp Asn Leu Ile Ser Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val
160 165 170

gtc cag ctc acc gtg agc ccc gag gtg cac cag agc aat gtg gcc tgg 640
Val Gln Leu Thr Val Ser Pro Glu Val His Gln Ser Asn Val Ala Trp
175 180 185

tgt agg ttg gtg aca gcc gcc tac aat tac ttc cat gta acc aac ttc 688
Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe
190 195 200

ttc tgg atq ttc qqt qag qgc tgc tac ctg cac aca gcc att gtg ctc 736

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Phe	Trp	Met	Phe	Gly	Glu	Gly	Cys	Tyr	Leu	His	Thr	Ala	Ile	Val	Leu	
205				210					215							
acg	tac	tcc	acc	gac	cgt	ctg	cgc	aag	tgg	atg	ttc	gtc	tgc	att	ggc	784
Thr	Tyr	Ser	Thr	Asp	Arg	Leu	Arg	Lys	Trp	Met	Phe	Val	Cys	Ile	Gly	
220				225					230						235	
tgg	ggt	gta	cct	ttc	ccc	atc	att	gtg	gct	tgg	gcc	att	ggg	aag	ctg	832
Trp	Gly	Val	Pro	Phe	Pro	Ile	Ile	Val	Ala	Trp	Ala	Ile	Gly	Lys	Leu	
						240			245			250				
cac	tac	gac	aat	gaa	aag	tgc	tgg	ttt	ggc	aaa	cgt	cct	ggg	gta	tac	880
His	Tyr	Asp	Asn	Glu	Lys	Cys	Trp	Phe	Gly	Lys	Arg	Pro	Gly	Val	Tyr	
						255			260			265				
act	gac	tac	atc	tac	cag	ggc	ccc	atg	atc	ctg	gtc	ctg	ctg	atc	aac	928
Thr	Asp	Tyr	Ile	Tyr	Gln	Gly	Pro	Met	Ile	Leu	Val	Leu	Leu	Ile	Asn	
						270			275			280				
ttt	atc	ttt	ctc	ttc	aac	att	gtc	cgc	atc	ctc	atg	acc	aaa	ctc	cgg	976
Phe	Ile	Phe	Leu	Phe	Asn	Ile	Val	Arg	Ile	Leu	Met	Thr	Lys	Leu	Arg	
						285			290			295				
gca	tcc	act	aca	tct	gag	acc	att	cag	tac	agg	aag	gct	gtg	aag	gcc	1024
Ala	Ser	Thr	Thr	Ser	Glu	Thr	Ile	Gln	Tyr	Arg	Lys	Ala	Val	Lys	Ala	
						300			305			310			315	
act	ctg	gtg	ctc	ctg	ccc	ctt	ctg	ggc	atc	acc	tac	atg	ttg	ttc	ttc	1072
Thr	Leu	Val	Leu	Leu	Pro	Leu	Leu	Gly	Ile	Thr	Tyr	Met	Leu	Phe	Phe	
						320			325			330				
gtc	aac	cct	gga	gag	gac	gag	gtc	tcc	agg	gtc	gtc	ttc	atc	tac	ttc	1120
Val	Asn	Pro	Gly	Glu	Asp	Glu	Val	Ser	Arg	Val	Val	Phe	Ile	Tyr	Phe	
						335			340			345				
aac	tct	ttt	ctg	gag	tcc	ttt	cag	ggc	ttc	ttt	gtg	tct	gtg	ttc	tac	1168
Asn	Ser	Phe	Leu	Glu	Ser	Phe	Gln	Gly	Phe	Phe	Val	Ser	Val	Phe	Tyr	
						350			355			360				
tgt	ttt	ctg	aac	agt	gag	gtc	cgc	tcc	gct	atc	cgg	aag	agg	tgg	cgt	1216
Cys	Phe	Leu	Asn	Ser	Glu	Val	Arg	Ser	Ala	Ile	Arg	Lys	Arg	Trp	Arg	
						365			370			375				
cg	tgg	cag	gac	aag	cac	tcc	atc	aga	gcc	cga	gtg	gcc	cga	gct	atg	1264
Arg	Trp	Gln	Asp	Lys	His	Ser	Ile	Arg	Ala	Arg	Val	Ala	Arg	Ala	Met	
						380			385			390			395	
tcc	atc	ccc	acc	tcc	ccg	acc	aga	gtc	agc	ttt	cac	agc	atc	aag	cag	1312
Ser	Ile	Pro	Thr	Ser	Pro	Thr	Arg	Val	Ser	Phe	His	Ser	Ile	Lys	Gln	
						400			405			410				
tcc	aca	gca	gtg	tga	gctccaggcc	acagagcagc	ccccaa	gacc	tgaggccggg							1367
Ser	Thr	Ala	Val													
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<213> Rattus norvegicus

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Gly Leu Asn Pro Val Ser Thr Ser Leu Gln Asp Gln Arg Cys Glu Asn  
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Leu Ser Leu Thr Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val  
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val  
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg  
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser  
100 105 110

Lys Val His Tyr His Val Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Val  
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Ala Trp Cys Arg Leu Val Thr  
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
210 215 220

Arg Leu Arg Lys Trp Met Phe Val Cys Ile Gly Trp Gly Val Pro Phe

225	230	235	240
Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu His Tyr Asp Asn Glu			
245	250	255	
Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr			
260	265	270	
Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe			
275	280	285	
Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser			
290	295	300	
Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu			
305	310	315	320
Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu			
325	330	335	
Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu			
340	345	350	
Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser			
355	360	365	
Glu Val Arg Ser Ala Ile Arg Lys Arg Trp Arg Arg Trp Gln Asp Lys			
370	375	380	
His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser			
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Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val			
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cgctgcactc tctgggtggct ccgcgtcgcg ccaggtccct cgcagccacg cggggcgccgc		180	
actcccactc ccaacgcgcg cggctccgga ggcga atg gac gcg gcg ctg ctc	Met Asp Ala Ala Leu Leu	233	
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ctc agc ctg ctg gag gcc aac tgc agc ctg gca ctg gcc gaa gag ctg		281	
Leu Ser Leu Leu Glu Ala Asn Cys Ser Leu Ala Leu Ala Glu Glu Leu			
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ctt ttg gac ggc tgg gga gag ccc ccg gac ccc gaa ggt ccc tac tcc		329	
Leu Leu Asp Gly Trp Gly Glu Pro Pro Asp Pro Glu Gly Pro Tyr Ser			
25	30	35	
tac tgc aac acg acc ttg gac cag atc ggg acc tgc tgg ccc cag agc		377	
Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser			
40	45	50	
gcg cct gga gcc cta gtg gag aga cca tgc ccc gaa tac ttc aac ggc		425	
Ala Pro Gly Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly			
55	60	65	70
atc aag tac aac acg acc cgg aat gcc tac aga gaa tgc ctg gag aat		473	
Ile Lys Tyr Asn Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn			
75	80	85	
ggg acc tgg gcc tca agg atc aac tac tca cac tgt gaa ccc att ttg		521	
Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser His Cys Glu Pro Ile Leu			
90	95	100	
gat gac aag cag agg aag tat gac ctg cat tac cga atc gcc ctc atc		569	
Asp Asp Lys Gln Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile			
105	110	115	
atc aac tac ctg ggc cac tgt gtt tcc gtg gtg gcc ctg gtg gct gct		617	
Ile Asn Tyr Leu Gly His Cys Val Ser Val Val Ala Leu Val Ala Ala			
120	125	130	
ttc ctg ctt ttc cta gtg ctg cgg agt atc cgc tgc ctg cgg aat gtg		665	
Phe Leu Leu Phe Leu Val Leu Arg Ser Ile Arg Cys Leu Arg Asn Val			
135	140	145	150
atc cac tgg aac ctc atc acc acc ttc atc ctg aga aac atc acg tgg		713	
Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Thr Trp			
155	160	165	
ttc ctg ctg caa ctc atc gac cac gaa gtg cat gag ggc aat gag gtc		761	
Phe Leu Leu Gln Leu Ile Asp His Glu Val His Glu Gly Asn Glu Val			
170	175	180	
tgg tgc cgc tgc gtc acc acc ata ttc aac tac ttt gtg gtc acc aac		809	
Trp Cys Arg Cys Val Thr Thr Ile Phe Asn Tyr Phe Val Val Thr Asn			
185	190	195	
ttc ttc tgg atg ttt gtg gaa ggc tgc tac ctg cac acg gcc atc gtc		857	
Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val			
200	205	210	
atg acg tac tcc acg gag cat ctg cgc aag tgg ctc ttc ctc ttc att		905	
Met Thr Tyr Ser Thr Glu His Leu Arg Lys Trp Leu Phe Leu Phe Ile			
215	220	225	230

gga tgg tgc ata ccc tgc cct atc att gtc gcc tgg gca gtt ggc aaa Gly Trp Cys Ile Pro Cys Pro Ile Ile Val Ala Trp Ala Val Gly Lys 235 240 245	953
ctc tac tat gag aat gag cag tgc tgg ttt ggc aag gaa cct ggt gac Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Asp 250 255 260	1001
tta gtg gac tac atc tac cag ggc ccc atc atc ctc gtg ctc ctc atc Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile Ile Leu Val Leu Leu Ile 265 270 275	1049
aat ttt gtg ttt ctg ttc aac atc gtc agg atc ctg atg aca aaa ctg Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu 280 285 290	1097
cga gcc tcc acc aca tcc gag acc atc cag tac agg aag gca gtg aag Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys 295 300 305 310	1145
gcc acc ctg gtc ctc ctc ccc ctg ttg ggc atc acc tac atg ctc ttc Ala Thr Leu Val Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe 315 320 325	1193
ttt gtc aat cct gga gag gac gac ctg tca cag att gtg ttc atc tac Phe Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr 330 335 340	1241
ttc aac tct ttc ctg cag tcc ttt cag ggt ttc ttt gtg tcc gtt ttc Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe 345 350 355	1289
tac tgc ttc ttc aat gga gag gtg cgc tcc gcc ctg aga aag cgg tgg Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser Ala Leu Arg Lys Arg Trp 360 365 370	1337
cac cgt tgg cag gac cac cac gcc ctc cga gtg cct gtg gcc cgg gcc His Arg Trp Gln Asp His His Ala Leu Arg Val Pro Val Ala Arg Ala 375 380 385 390	1385
atg tcc att ccc aca tcg ccc acc agg atc agc ttc cac agc atc aag Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys 395 400 405	1433
cag aca gct gcc gtg tga tccccgtca cccatctgcc cagcactcca Gln Thr Ala Ala Val 410	1481
ccaccgaggc ggcttcctca ttcttcacag ccttcctgg gtcctccttg ctacactgac	1541
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<213> Rattus norvegicus	

<400> 18

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Pro Glu Gly Pro Tyr Ser Tyr Cys Asn Thr Thr Leu Asp Gln Ile Gly  
35 40 45  
Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val Glu Arg Pro Cys  
50 55 60  
Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr Arg Asn Ala Tyr  
65 70 75 80  
Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser  
85 90 95  
His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His  
100 105 110  
Tyr Arg Ile Ala Leu Ile Ile Asn Tyr Leu Gly His Cys Val Ser Val  
115 120 125  
Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu Arg Ser Ile  
130 135 140  
Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile  
145 150 155 160  
Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile Asp His Glu Val  
165 170 175  
His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr Thr Ile Phe Asn  
180 185 190  
Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr  
195 200 205  
Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His Leu Arg Lys  
210 215 220  
Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro Ile Ile Val  
225 230 235 240

Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe  
245 250 255

Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile  
260 265 270

Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg  
275 280 285

Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln  
290 295 300

Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu Gly  
305 310 315 320

Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser  
325 330 335

Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly  
340 345 350

Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser  
355 360 365

Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His His Ala Leu Arg  
370 375 380

Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile  
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Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
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<220>  
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ggc tct ctt ccc agt gca caa ctc ctc tgc cta tac tct ctg ctc 103  
Gly Ser Leu Pro Ser Ala Gln Leu Leu Cys Leu Tyr Ser Leu Leu

5	10	15	20	
cca ctg ctc cag gtg gcc caa cca ggc agg cca ctc cag gac cag ccc Pro Leu Leu Gln Val Ala Gln Pro Gly Arg Pro Leu Gln Asp Gln Pro	25	30	35	151
ctg tgg aca ctt ttg gag cag tac tgc cat agg acc aca act cg <sup>g</sup> aat Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr Thr Arg Asn	40	45	50	199
ttt tca ggt ccc tac tcc tac tgc tac acg acc ttg gac cag atc ggg Phe Ser Gly Pro Tyr Ser Tyr Cys Tyr Thr Thr Leu Asp Gln Ile Gly	55	60	65	247
acc tgc tgg ccc cag agc gc <sup>g</sup> cct gga gcc cta gtg gag aga cca tgc Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val Glu Arg Pro Cys	70	75	80	295
ccc gaa tac ttc aac ggc atc aag tac aac acg acc cg <sup>g</sup> aat gcc tac Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr Arg Asn Ala Tyr	85	90	95	343
aga gaa tgc ctg gag aat ggg acc tgg gcc tca agg atc aac tac tca Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg Ile Asn Tyr Ser	105	110	115	391
cac tgt gaa ccc att ttg gat gac aag cag agg aag tat gac ctg cat His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys Tyr Asp Leu His	120	125	130	439
tac cga atc gcc ctc atc atc aac tac ctg ggc cac tgt gtt tcc gtg Tyr Arg Ile Ala Leu Ile Asn Tyr Leu Gly His Cys Val Ser Val	135	140	145	487
gtg gcc ctg gtg gct gct ttc ctg ctt ttc cta gtg ctg cgg agt atc Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu Arg Ser Ile	150	155	160	535
cgc tgc ctg cg <sup>g</sup> aat gtg atc cac tgg aac ctc atc acc acc ttc atc Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr Thr Phe Ile	165	170	175	583
ctg aga aac atc acg tgg ttc ctg ctg caa ctc atc gac cac gaa gtg Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile Asp His Glu Val	185	190	195	631
cat gag ggc aat gag gtc tgg tgc cgc tgc gtc acc acc ata ttc aac His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr Thr Ile Phe Asn	200	205	210	679
tac ttt gtg gtc acc aac ttc ttc tgg atg ttt gtg gaa ggc tgc tac Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly Cys Tyr	215	220	225	727
ctg cac acg gcc atc gtc atg acg tac tcc acg gag cat ctg cgc aag Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His Leu Arg Lys	230	235	240	775
tgg ctc ttc ctc ttc att gga tgg tgc ata ccc tgc cct atc att gtc Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro Ile Ile Val	245	250	255	823
				260

gcc tgg gca gtt ggc aaa ctc tac tat gag aat gag cag tgc tgg ttt Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln Cys Trp Phe 265 270 275	871
ggc aag gaa cct ggt gac tta gtg gac tac atc tac cag ggc ccc atc Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr Gln Gly Pro Ile 280 285 290	919
atc ctc gtg ctc ctc atc aat ttt gtg ttt ctg ttc aac atc gtc agg Ile Leu Val Leu Ile Asn Phe Val Phe Leu Phe Asn Ile Val Arg 295 300 305	967
atc ctg atg aca aaa ctg cga gcc tcc acc aca tcc gag acc atc cag Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln 310 315 320	1015
tac agg aag gca gtg aag gcc aac ctg gtc ctc ccc ctg ttg ggc Tyr Arg Lys Ala Val Lys Ala Asn Leu Val Leu Leu Pro Leu Leu Gly 325 330 335 340	1063
atc acc tac atg ctc ttc ttt gtc aat cct gga gag gac gac ctg tca Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Asp Leu Ser 345 350 355	1111
cag att gtg ttc atc tac ttc aac tct ttc ctg cag tcc ttt cag ggt Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly 360 365 370	1159
ttc ttt gtg tcc gtt ttc tac tgc ttc aat gga gag gtg cgc tcc Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu Val Arg Ser 375 380 385	1207
gcc ctg aga aag cgg tgg cac cgt tgg cag gac cac cac gcc ctc cga Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His His Ala Leu Arg 390 395 400	1255
gtg cct gtg gcc cgg gcc atg tcc att ccc aca tcg ccc acc agg atc Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Ile 405 410 415 420	1303
agc ttc cac agc atc aag cag aca gct gcc gtg tga tcccctgtca Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val 425 430	1349
ccccatctgcc cagcactcca ccaccgaggc ggcttcctca ttcttcacag ccttcctgg	1409
gtcctccttg ctacactgac cttgggtgc aggagaaggg ggggtggatg aactctcctg	1469
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<400> 20	

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 Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr  
 35 40 45  
 Thr Thr Arg Asn Phe Ser Gly Pro Tyr Ser Tyr Cys Tyr Thr Thr Leu  
 50 55 60  
 Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val  
 65 70 75 80  
 Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr  
 85 90 95  
 Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg  
 100 105 110  
 Ile Asn Tyr Ser His Cys Glu Pro Ile Leu Asp Asp Lys Gln Arg Lys  
 115 120 125  
 Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Ile Asn Tyr Leu Gly His  
 130 135 140  
 Cys Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val  
 145 150 155 160  
 Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile  
 165 170 175  
 Thr Thr Phe Ile Leu Arg Asn Ile Thr Trp Phe Leu Leu Gln Leu Ile  
 180 185 190  
 Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Val Thr  
 195 200 205  
 Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val  
 210 215 220  
 Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu  
 225 230 235 240  
 His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys  
 245 250 255

Pro Ile Ile Val Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu  
260 265 270

Gln Cys Trp Phe Gly Lys Glu Pro Gly Asp Leu Val Asp Tyr Ile Tyr  
275 280 285

Gln Gly Pro Ile Ile Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe  
290 295 300

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
305 310 315 320

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Asn Leu Val Leu Leu  
325 330 335

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
340 345 350

Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln  
355 360 365

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly  
370 375 380

Glu Val Arg Ser Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His  
385 390 395 400

His Ala Leu Arg Val Pro Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
405 410 415

Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
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<213> Mus musculus

<220>  
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<222> (32)..(1279)

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cgg ctc gtg aag gcc ctt ctc ctt ctg ggg ctg aac ccc gtc tcc acc 100  
Arg Leu Val Lys Ala Leu Leu Leu Gly Leu Asn Pro Val Ser Thr

10	15	20	
tcc ctc cag gat cag cag tgt gag agc ctg tcc ctg gcc agc aat gtc Ser Leu Gln Asp Gln Gln Cys Glu Ser Leu Ser Leu Ala Ser Asn Val	25	30	148
		35	
tct ggc ctg cag tgc aat gcc tcc gtg gac ctc att ggc acc tgc tgg Ser Gly Leu Gln Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp	40	45	196
		50	55
ccc agg agc cct gca ggg cag ttg gtg gtt cgg ccc tgc cct gcc ttt Pro Arg Ser Pro Ala Gly Gln Leu Val Val Arg Pro Cys Pro Ala Phe	60	65	244
		70	
ttc tac ggt gtc cgc tac aac acc aca aac aat ggc tac cgg gaa tgc Phe Tyr Gly Val Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys	75	80	292
		85	
ctg gcc aac ggc agc tgg gca gcc cgt gtg aat tat tct gag tgc cag Leu Ala Asn Gly Ser Trp Ala Ala Arg Val Asn Tyr Ser Glu Cys Gln	90	95	340
		100	
gag att ctc aac gaa gag aag aag agc aaa gtg cac tac cac att gcc Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Val His Tyr His Ile Ala	105	110	388
		115	
gtc atc atc aac tac ctg ggc cac tgc atc tcc ctg gtg gcc ctc ctg Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser Leu Val Ala Leu Leu	120	125	436
		130	135
gtg gcc ttt gtc ctc ttc ctg cgg ctc agg agc atc cgg tgc ctg agg Val Ala Phe Val Leu Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg	140	145	484
		150	
aac atc atc cac tgg aac ctc atc tcg gct ttc atc ctg cgc aac gcc Asn Ile Ile His Trp Asn Leu Ile Ser Ala Phe Ile Leu Arg Asn Ala	155	160	532
		165	
acg tgg ttt gtg gtc cag ctc acc gtg agc ccc gag gtc cac cag agc Thr Trp Phe Val Val Gln Leu Thr Val Ser Pro Glu Val His Gln Ser	170	175	580
		180	
aac gtg gcc tgg tgc agg ctg gtg aca gcc tac aac tac ttc cac Asn Val Ala Trp Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His	185	190	628
		195	
gta acc aac ttc ttc tgg atg ttc ggt gag ggc tgc tac ctg cac aca Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr	200	205	676
		210	215
gcc atc gta ctc acg tac tcc acc gac cgt ctg cgc aag tgg atg ttc Ala Ile Val Leu Thr Tyr Ser Thr Asp Arg Leu Arg Lys Trp Met Phe	220	225	724
		230	
gtc tgc atc ggc tgg ggt gtg cct ttc ccc atc att gtg gct tgg gcc Val Cys Ile Gly Trp Gly Val Pro Phe Pro Ile Ile Val Ala Trp Ala	235	240	772
		245	
att ggg aaa ctt tac tac gac aat gaa aag tgc tgg ttt ggc aaa cgt Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg	250	255	820
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cct gga gta tat act gac tac atc tac cag ggc ccc atg atc ctg gtc Pro Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val	868
265                           270                           275	
ctg ctg atc aac ttt atc ttt ctc ttc aac att gtc cgc atc ctc atg Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met	916
280                           285                           290                           295	
acc aaa ctc cga gca tcc acc aca tct gag act att cag tac agg aag Thr Lys Leu Arg Ala Ser Thr Ser Glu Thr Ile Gln Tyr Arg Lys	964
300                           305                           310	
gct gtg aag gcc act ctg gtg ctc ttg ccc ctc ctg ggc atc acc tac Ala Val Lys Ala Thr Leu Val Leu Pro Leu Leu Gly Ile Thr Tyr	1012
315                           320                           325	
atg ttg ttc ttc gtc aac cct ggg gag gac gag gtc tcc agg gtt gtc Met Leu Phe Val Asn Pro Gly Glu Asp Glu Val Ser Arg Val Val	1060
330                           335                           340	
ttc atc tac ttc aac tct ttc ctg gag tcc ttt cag ggc ttc ttc gtg Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val	1108
345                           350                           355	
tct gtg ttc tat tgt ttt ctg aac agt gag gtc cgc tct gcc atc cgg Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Ile Arg	1156
360                           365                           370                           375	
aag agg tgg cgg cga tgg cag gac aag cac tcc atc aga gcc cga gtg Lys Arg Trp Arg Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val	1204
380                           385                           390	
gcc cgc gcc atg tcc atc ccc acc tcc ccc acc aga gtc agc ttc cac Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His	1252
395                           400                           405	
agc atc aag cag tcc aca gca gtg tga acctcaggcc acagagcagc Ser Ile Lys Gln Ser Thr Ala Val	1299
410                           415	
ccccaaagacc cgaggctggg gaaatgatgc aagctcacta gcgagcctgt ctgcagaggc	1359
aggcagcctt cccatccctg cccctggat gcagacctgt aagcctgccc agccgtggac	1419
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agtctatgag gaaggagtgg cccctggta cccaggccac tggcttcagt ggctggcctc 2079  
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<400> 22

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Gly Leu Asn Pro Val Ser Thr Ser Leu Gln Asp Gln Gln Cys Glu Ser  
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Leu Ser Leu Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val  
35 40 45

Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Pro Ala Gly Gln Leu Val  
50 55 60

Val Arg Pro Cys Pro Ala Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr  
65 70 75 80

Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Ser Trp Ala Ala Arg  
85 90 95

Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser  
100 105 110

Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

Ile Ser Leu Val Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Val  
 165 170 175  
 Ser Pro Glu Val His Gln Ser Asn Val Ala Trp Cys Arg Leu Val Thr  
 180 185 190  
 Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
 195 200 205  
 Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
 210 215 220  
 Arg Leu Arg Lys Trp Met Phe Val Cys Ile Gly Trp Gly Val Pro Phe  
 225 230 235 240  
 Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu  
 245 250 255  
 Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr  
 260 265 270  
 Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
 275 280 285  
 Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
 290 295 300  
 Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
 305 310 315 320  
 Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
 325 330 335  
 Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu  
 340 345 350  
 Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
 355 360 365  
 Glu Val Arg Ser Ala Ile Arg Lys Arg Trp Arg Arg Trp Gln Asp Lys  
 370 375 380  
 His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
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Pro	Thr	Arg	Val	Ser	Phe	His	Ser	Ile	Lys	Gln	Ser	Thr	Ala	Val		
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		Met	Gly	Thr	Pro	Gly	Ser	Leu	Pro	Ser	Ala	Gln				
		1						5				10				
ctt	ctc	ctc	tgc	ctg	ttt	tcc	ctg	ctt	cca	gtg	ctc	cag	gtg	gcc	caa	
Leu	Leu	Leu	Cys	Leu	Phe	Ser	Leu	Leu	Pro	Val	Leu	Gln	Val	Ala	Gln	
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cca	ggc	cag	gca	ccc	cag	gac	cag	ccc	ctg	tgg	aca	ctt	ttg	gag	cag	
Pro	Gly	Gln	Ala	Pro	Gln	Asp	Gln	Pro	Leu	Trp	Thr	Leu	Glu	Gln		
30							35					40			207	
tac	tgc	cac	agg	acc	aca	att	ggg	aat	ttt	tca	ggt	ccc	tac	acc	tac	
Tyr	Cys	His	Arg	Thr	Thr	Ile	Gly	Asn	Phe	Ser	Gly	Pro	Tyr	Thr	Tyr	
45						50					55					
tgc	aac	acg	acc	ttg	gac	cag	atc	ggg	acc	tgc	tgg	cca	cag	agc	gca	
Cys	Asn	Thr	Thr	Leu	Asp	Gln	Ile	Gly	Thr	Cys	Trp	Pro	Gln	Ser	Ala	
60						65				70			75		303	
ccc	gga	gcc	cta	gtt	gag	aga	ccg	tgc	ccc	gag	tac	ttc	aat	ggc	atc	
Pro	Gly	Ala	Leu	Val	Glu	Arg	Pro	Cys	Pro	Glu	Tyr	Phe	Asn	Gly	Ile	
						80				85			90		351	
aag	tac	aac	acg	acc	cgg	aat	gcc	tac	aga	gag	tgc	ctg	gag	aac	ggg	
Lys	Tyr	Asn	Thr	Thr	Arg	Asn	Ala	Tyr	Arg	Glu	Cys	Leu	Glu	Asn	Gly	
95							100					105			399	
acc	tgg	gcc	tca	agg	gtc	aac	tac	tca	cac	tgc	gaa	ccc	att	ttg	gat	
Thr	Trp	Ala	Ser	Arg	Val	Asn	Tyr	Ser	His	Cys	Glu	Pro	Ile	Leu	Asp	
110							115					120			447	
gac	aag	cag	aga	aag	tat	gac	ctg	cat	tac	cga	atc	gcc	ctc	att	gtc	
Asp	Lys	Gln	Arg	Lys	Tyr	Asp	Leu	His	Tyr	Arg	Ile	Ala	Leu	Ile	Val	
125							130					135			495	
aac	tac	ctg	ggt	cac	tgt	gtt	tcc	gtg	gtg	gcc	ctg	gtg	gcc	gct	ttc	
Asn	Tyr	Leu	Gly	His	Cys	Val	Ser	Val	Val	Ala	Leu	Val	Ala	Ala	Phe	
140							145					150			543	
ctg	ctt	ttc	cta	gtt	ctg	ctg	cg	agt	atc	cgc	tgc	ctg	agg	aat	gtg	atc
Leu	Leu	Phe	Leu	Leu	Arg	Ser	Ile	Arg	Cys	Leu	Arg	Asn	Val	Ile		
160							165					170			591	
cac	tgg	aac	ctc	atc	acc	acc	ttc	att	ctg	aga	aac	atc	gct	tgg	ttc	
															639	

His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe	185	
175	180	
ctg ctg caa ctc atc gac cac gaa gtg cac gag ggc aat gag gtc tgg	687	
Leu Leu Gln Leu Ile Asp His Glu Val His Glu Gly Asn Glu Val Trp	200	
190	195	
tgc cgc tgc atc acc acc atc ttc aac tat ttt gtg gtc acc aac ttc	735	
Cys Arg Cys Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe	215	
205	210	
ttc tgg atg ttt gtg gag ggc tgc tac ctg cac acg gcc att gtc atg	783	
Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met	235	
220	225	
acg tac tcc aca gag cac ctg cgc aag tgg ctt ttc ctc ttc att gga	831	
Thr Tyr Ser Thr Glu His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly	250	
240	245	
tgg tgc att ccc tgc cct atc atc atc gcc tgg gca gtt ggc aaa ctc	879	
Trp Cys Ile Pro Cys Pro Ile Ile Ala Trp Ala Val Gly Lys Leu	265	
255	260	
tac tat gag aat gag cag tgc tgg ttt ggc aag gaa gct ggt gat ttg	927	
Tyr Tyr Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu	280	
270	275	
gtg gac tac atc tac cag ggc ccc gtc atg ctt gtg ctg ttg atc aat	975	
Val Asp Tyr Ile Tyr Gln Gly Pro Val Met Leu Val Leu Leu Ile Asn	295	
285	290	
ttt gta ttt ctg ttt aac atc gtc agg atc ctg atg acg aag tta cga	1023	
Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg	315	
300	305	
gca tcc acc acg tcc gag aca atccaa tac agg aag gca gtg aag gcc	1071	
Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala	330	
320	325	
acg ctg gtc ctc ctc ccc ctg ttg ggc atc acc tac atg ctc ttc ttt	1119	
Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe	345	
335	340	
gtc aat cct ggc gag gac gac ctg tcc cag att gtg ttc atc tac ttc	1167	
Val Asn Pro Gly Glu Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe	360	
350	355	
aac tct ttc ctg cag tcc ttc cag ggt ttc ttt gtg tcc gtt ttc tac	1215	
Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr	375	
365	370	
tgc ttc ttc aat gga gag gtg cgc gcg gcc ctg aga aag cgg tgg cac	1263	
Cys Phe Phe Asn Gly Glu Val Arg Ala Ala Leu Arg Lys Arg Trp His	395	
380	385	
cgc tgg cag gac cac cac gcc ctc cgg gtg cct gtg gcc cgg gcc atg	1311	
Arg Trp Gln Asp His His Ala Leu Arg Val Pro Val Ala Arg Ala Met	410	
400	405	
tcc atc cct acg tcg ccc acc agg atc agc ttc cac agc atc aag cag	1359	
Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln		



Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Ile Thr  
 195 200 205  
 Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val  
 210 215 220  
 Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu  
 225 230 235 240  
 His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys  
 245 250 255  
 Pro Ile Ile Ile Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu  
 260 265 270  
 Gln Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu Val Asp Tyr Ile Tyr  
 275 280 285  
 Gln Gly Pro Val Met Leu Val Leu Ile Asn Phe Val Phe Leu Phe  
 290 295 300  
 Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
 305 310 315 320  
 Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
 325 330 335  
 Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
 340 345 350  
 Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln  
 355 360 365  
 Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly  
 370 375 380  
 Glu Val Arg Ala Ala Leu Arg Lys Arg Trp His Arg Trp Gln Asp His  
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 tctgctgtcc c atg ggg acc cca ggc tct ctt ccc agt gca cag ctt ctc 170  
                   Met Gly Thr Pro Gly Ser Leu Pro Ser Ala Gln Leu Leu  
                   1              5                  10  
  
 ctc tgc ctg ttt tcc ctg ctt cca gtg ctc cag gtg gcc caa cca ggc 218  
 Leu Cys Leu Phe Ser Leu Leu Pro Val Leu Gln Val Ala Gln Pro Gly  
                   15              20                  25  
  
 cag gca ccc cag gac cag ccc ctg tgg aca ctt ttg gag cag tac tgc 266  
 Gln Ala Pro Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys  
                   30              35                  40                  45  
  
 cac agg acc aca att ggg aat ttt tca ggt ccc tac acc tac tgc aac 314  
 His Arg Thr Thr Ile Gly Asn Phe Ser Gly Pro Tyr Thr Tyr Cys Asn  
                   50              55                  60  
  
 acg acc ttg gac cag atc ggg acc tgc tgg cca cag agc gca ccc gga 362  
 Thr Thr Leu Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala Pro Gly  
                   65              70                  75  
  
 gcc cta gta gag aga ccg tgc ccc gag tac ttc aat ggc atc aag tac 410  
 Ala Leu Val Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr  
                   80              85                  90  
  
 aac acg acc cgg aat gcc tac aga gag tgc ctg gag aac ggg acc tgg 458  
 Asn Thr Thr Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp  
                   95              100                  105  
  
 gcc tca agg gtc aac tac tca cac tgc gaa ccc att ttg gat gac aag 506  
 Ala Ser Arg Val Asn Tyr Ser His Cys Glu Pro Ile Leu Asp Asp Lys  
                   110              115                  120                  125  
  
 aga aag tat gac ctg cat tac cga atc gcc ctc att gtc aac tac ctg 554  
 Arg Lys Tyr Asp Leu His Tyr Arg Ile Ala Leu Ile Val Asn Tyr Leu  
                   130              135                  140  
  
 ggt cac tgt gtt tcc gtg gtg gcc ctg gtg gcc gct ttc ctg ctt ttc 602  
 Gly His Cys Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe  
                   145              150                  155  
  
 cta gtg ctg cgg agt atc cgc tgc ctg agg aat gtg atc cac tgg aac 650  
 Leu Val Leu Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn  
                   160              165                  170  
  
 ctc atc acc acc ttc att ctg aga aac atc gcg tgg ttc ctg ctg caa 698  
 Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe Leu Leu Gln  
                   175              180                  185

ctc atc gac cac gaa gtg cac gag ggc aat gag gtc tgg tgc cgc tgc Leu Ile Asp His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys 190 195 200 205	746
atc acc acc atc ttc aac tat ttt gtg gtc acc aac ttc ttc tgg atg Ile Thr Thr Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met 210 215 220	794
ttt gtg gag ggc tgc tac ctg cac acg gcc att gtc atg acg tac tcc Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser 225 230 235	842
aca gag cac ctg cgc aag tgg ctt ttc ctc att gga tgg tgc att Thr Glu His Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile 240 245 250	890
ccc tgc cct atc atc atc gcc tgg gca gtt ggc aaa ctc tac tat gag Pro Cys Pro Ile Ile Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu 255 260 265	938
aat gag cag tgc tgg ttt ggc aag gaa gct ggt gat ttg gtg gac tac Asn Glu Gln Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu Val Asp Tyr 270 275 280 285	986
atc tac cag ggc ccc gtc atg ctt gtg ctg ttg atc aat ttt gta ttt Ile Tyr Gln Gly Pro Val Met Leu Val Leu Leu Ile Asn Phe Val Phe 290 295 300	1034
ctg ttt aac atc gtc agg atc ctg atg acg aag tta cga gca tcc acc Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr 305 310 315	1082
acg tcc gag aca atc caa tac agg aag gca gtg aag gcc acg ctg gtc Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val 320 325 330	1130
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ggc gag gac gac ctg tcc cag att gtg ttc atc tac ttc aac tct ttc Gly Glu Asp Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe 350 355 360 365	1226
ctg cag tcc ttc cag ggt ttc ttt gtg tcc gtt ttc tac tgc ttc ttc Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe 370 375 380	1274
aat gga gag gtg cgc gcg gcc ctg aga aac ggg tgg cac cgc tgg cag Asn Gly Glu Val Arg Ala Ala Leu Arg Asn Gly Trp His Arg Trp Gln 385 390 395	1322
gac cac cac gcc ctc cgg gtg cct gtg gcc cgg gcc atg tcc atc cct Asp His His Ala Leu Arg Val Pro Val Ala Arg Ala Met Ser Ile Pro 400 405 410	1370
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Val	
430	
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cg	2617

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Phe Ser Leu Leu Pro Val Leu Gln Val Ala Gln Pro Gly Gln Ala Pro  
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Gln Asp Gln Pro Leu Trp Thr Leu Leu Glu Gln Tyr Cys His Arg Thr

35	40	45	
Thr Ile Gly Asn Phe Ser Gly Pro Tyr Thr Tyr Cys Asn Thr Thr Leu			
50	55	60	
Asp Gln Ile Gly Thr Cys Trp Pro Gln Ser Ala Pro Gly Ala Leu Val			
65	70	75	80
Glu Arg Pro Cys Pro Glu Tyr Phe Asn Gly Ile Lys Tyr Asn Thr Thr			
85	90	95	
Arg Asn Ala Tyr Arg Glu Cys Leu Glu Asn Gly Thr Trp Ala Ser Arg			
100	105	110	
Val Asn Tyr Ser His Cys Glu Pro Ile Leu Asp Asp Lys Arg Lys Tyr			
115	120	125	
Asp Leu His Tyr Arg Ile Ala Leu Ile Val Asn Tyr Leu Gly His Cys			
130	135	140	
Val Ser Val Val Ala Leu Val Ala Ala Phe Leu Leu Phe Leu Val Leu			
145	150	155	160
Arg Ser Ile Arg Cys Leu Arg Asn Val Ile His Trp Asn Leu Ile Thr			
165	170	175	
Thr Phe Ile Leu Arg Asn Ile Ala Trp Phe Leu Leu Gln Leu Ile Asp			
180	185	190	
His Glu Val His Glu Gly Asn Glu Val Trp Cys Arg Cys Ile Thr Thr			
195	200	205	
Ile Phe Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu			
210	215	220	
Gly Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Glu His			
225	230	235	240
Leu Arg Lys Trp Leu Phe Leu Phe Ile Gly Trp Cys Ile Pro Cys Pro			
245	250	255	
Ile Ile Ile Ala Trp Ala Val Gly Lys Leu Tyr Tyr Glu Asn Glu Gln			
260	265	270	
Cys Trp Phe Gly Lys Glu Ala Gly Asp Leu Val Asp Tyr Ile Tyr Gln			
275	280	285	

Gly Pro Val Met Leu Val Leu Leu Ile Asn Phe Val Phe Leu Phe Asn  
 290 295 300  
 Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu  
 305 310 315 320  
 Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro  
 325 330 335  
 Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp  
 340 345 350  
 Asp Leu Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser  
 355 360 365  
 Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Phe Asn Gly Glu  
 370 375 380  
 Val Arg Ala Ala Leu Arg Asn Gly Trp His Arg Trp Gln Asp His His  
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 Thr Arg Ile Ser Phe His Ser Ile Lys Gln Thr Ala Ala Val  
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1 5 10 15		
ggg ctg aac tcc atc tcc gcc tcc ctc cag gac cag cat tgc gag agc		96
Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser		
20 25 30		
ttg tcc ctg gcc agc aac gtc tct gga ctg cag tgc aac gct tcc gtg		144
Leu Ser Leu Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val		
35 40 45		
gac ctt aat ggc acc tgc tgg ccc cag agt cct gca ggg cag ttg gtg		192

Asp	Leu	Asn	Gly	Thr	Cys	Trp	Pro	Gln	Ser	Pro	Ala	Gly	Gln	Leu	Val		
50				55					60								
gtt	cga	ccc	tgc	ctc	gta	ttt	ttc	tat	ggt	gtc	cgc	tac	aat	acc	aca	240	
Val	Arg	Pro	Cys	Leu	Val	Phe	Phe	Tyr	Gly	Val	Arg	Tyr	Asn	Thr	Thr		
65					70				75				80				
agc	aat	ggc	tac	cg	gtg	tgc	ctg	gcc	aat	ggc	acg	tgg	gca	gcc	cgc	288	
Ser	Asn	Gly	Tyr	Arg	Val	Cys	Leu	Ala	Asn	Gly	Thr	Trp	Ala	Ala	Arg		
					85			90				95					
gtg	aat	cac	tcc	gag	tgc	caa	gag	atc	ctc	agc	gaa	gga	gag	aag	agc	336	
Val	Asn	His	Ser	Glu	Cys	Gln	Glu	Ile	Leu	Ser	Glu	Gly	Glu	Lys	Ser		
					100			105				110					
aag	g	cg	cac	tac	cac	atc	gcc	gtc	atc	atc	aac	tac	ctg	ggc	cac	tgc	384
Lys	Ala	His	Tyr	His	Ile	Ala	Val	Ile	Ile	Asn	Tyr	Leu	Gly	His	Cys		
					115			120				125					
atc	tcc	ctg	g	cg	gcc	ctc	ctg	gtg	gcc	ttt	gtc	ctc	ttt	ctg	cg	ctc	432
Ile	Ser	Leu	Ala	Ala	Leu	Leu	Val	Ala	Phe	Val	Leu	Phe	Leu	Arg	Leu		
					130			135				140					
agg	agc	atc	cg	tg	gt	aga	aa	atc	atc	cac	tgg	aa	c	ctc	atc	tca	480
Arg	Ser	Ile	Arg	Cys	Val	Arg	Asn	Ile	Ile	His	Trp	Asn	Leu	Ile	Ser		
					145			150				155				160	
gcc	t	tc	atc	ctg	cg	aat	gg	ac	tgg	ttc	gt	gt	cag	ctc	acc	atg	528
Ala	Phe	Ile	Leu	Arg	Asn	Ala	Thr	Trp	Phe	Val	Val	Gln	Leu	Thr	Met		
					165			170				175					
agc	ccc	gaa	gtc	cat	cag	agc	aa	gt	gg	tgg	tgc	agg	ctg	gt	aca		576
Ser	Pro	Glu	Val	His	Gln	Ser	Asn	Val	Gly	Trp	Cys	Arg	Leu	Val	Thr		
					180			185				190					
gcc	g	cc	ta tac ttc cac gtg acc aa ttc ttc tgg atg ttc ggc Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205  gag ggc tgc tac ctg cac acg gct gtc gtg ctc aca tac tcc acg gac Glu Gly Cys Tyr Leu His Thr Ala Val Val Leu Thr Tyr Ser Thr Asp 210 215 220  cg cg cgc aaa tgg atg ttt atc tgc atc ggc tgg ggt gtg ccc ttc Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe 225 230 235 240  ccc atc att gtg gcc tgg gcc att gga aag ttg tac tac gac aat gag Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255  aag tgc tgg ttt ggc aaa agg cct ggg gtg tac act gat tac atc tac Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr 260 265 270  cag ggc ccg atg atc ttg gtc ctg atc aat ttc atc ttc ctt ttc Gln Gly Pro Met Ile Leu Val Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285  aac atc gtt cgc atc ctc atg acc aaa ctc cg gca tcc acc acc tct Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Ser 290 295 300	720	768	816	864	912									

290	295	300	
gag acc att cag tac agg aag gct gtg aag gcc act ctg gtg ctg ctc Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu			
305	310	315	960
ccc ctc ctg ggc atc acg tac atg ctg ttc gtg aac ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu			
325	330	335	1008
gac gag gtc tcc cggt gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu			
340	345	350	1056
tct ttc cag ggc ttc ttc gtg tct gtg ttc tac tgc ttc ctc aac agc Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser			
355	360	365	1104
gag gtc cgc tct gcc atc cggt aag agg tgg cac cgc tgg cag gac aag Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys			
370	375	380	1152
cac tca atc cgt gcc cgt gtg gct cgc gcc atg tcc atc ccc acc tcc His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser			
385	390	395	1200
400	405	410	415
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1248			
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Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser			
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Leu Ser Leu Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val			
35	40	45	
Asp Leu Asn Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val			
50	55	60	
Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr			
65	70	75	80
Ser Asn Gly Tyr Arg Val Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg			
85	90	95	

Val Asn His Ser Glu Cys Gln Glu Ile Leu Ser Glu Gly Glu Lys Ser  
100 105 110

Lys Ala His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys  
115 120 125

Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu  
130 135 140

Arg Ser Ile Arg Cys Val Arg Asn Ile Ile His Trp Asn Leu Ile Ser  
145 150 155 160

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met  
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr  
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Val Val Leu Thr Tyr Ser Thr Asp  
210 215 220

Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe  
225 230 235 240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu  
245 250 255

Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr  
260 265 270

Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
275 280 285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
290 295 300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
305 310 315 320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
325 330 335

Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu  
 340 345 350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
 355 360 365

Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
 370 375 380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
 385 390 395 400

Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln Ser Thr Ala Val  
 405 410 415

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gct gga atc agt ttt gcc ctc acc tct ctc cag gac caa tgt gaa acc 96  
 Ala Gly Ile Ser Phe Ala Leu Thr Ser Leu Gln Asp Gln Cys Glu Thr  
 20 25 30

ctg cag cac aat tct aac ttc aca ggt ctt gcc tgc aac gct tcc att 144  
 Leu Gln His Asn Ser Asn Phe Thr Gly Leu Ala Cys Asn Ala Ser Ile  
 35 40 45

gat atg atc ggc act tgc tgg ccc agt act gca gct gga cag atg gtg 192  
 Asp Met Ile Gly Thr Cys Trp Pro Ser Thr Ala Ala Gly Gln Met Val  
 50 55 60

gcc aga ccc tgc ccc gag tac ttc cat ggg gtg caa tac aac aca aca 240  
 Ala Arg Pro Cys Pro Glu Tyr Phe His Gly Val Gln Tyr Asn Thr Thr  
 65 70 75 80

ggg aat gtg tac aga gaa tgt cac ctg aac ggc agc tgg gct ggg aga 288  
 Gly Asn Val Tyr Arg Glu Cys His Leu Asn Gly Ser Trp Ala Gly Arg  
 85 90 95

gga gac tac gct caa tgc cag gag att cta aag caa gag aag aaa acc 336  
 Gly Asp Tyr Ala Gln Cys Gln Glu Ile Leu Lys Gln Glu Lys Lys Thr  
 100 105 110

aaa gtt cat tat cac ata gcc atc gtg att aac ttc ctg ggt cac tcc 384  
 Lys Val His Tyr His Ile Ala Ile Val Ile Asn Phe Leu Gly His Ser  
 115 120 125

att tcc ctt tgt gct ctc ctg gtg gct ttt atc ctg ttc ttg agg ttg Ile Ser Leu Cys Ala Leu Leu Val Ala Phe Ile Leu Phe Leu Arg Leu 130 135 140	432
agg agc atc cg <sup>g</sup> tgc cta cgt aat atc atc cac tgg aac ctg atc acg Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr 145 150 155 160	480
gct ttt att ctg cgt aat gta acc tgg ttt gtg atg cag ctc act ctc Ala Phe Ile Leu Arg Asn Val Thr Trp Phe Val Met Gln Leu Thr Leu 165 170 175	528
agc cat gaa gcc cac gac agc aat gtg gtt tgg tgc cgc ctg gtc acc Ser His Glu Ala His Asp Ser Asn Val Val Trp Cys Arg Leu Val Thr 180 185 190	576
atc gct cac aat tat ttt tat gtt acc aac ttc ttc tgg atg ttt ggg Ile Ala His Asn Tyr Phe Tyr Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205	624
gag ggc tgt tac ctg cac acg gcc att gtt cta acc tac tca act gac Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp 210 215 220	672
aaa ctg cgc aaa tgg atg ttc atc tgt att ggc tgg tgt atc ccc ttt Lys Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe 225 230 235 240	720
ccc atc att gtg gct tgg gcc att ggc aaa ctt tac tac gac aat gaa Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255	768
aag tgc tgg ttt ggg aag aaa gcg gga gtc tac aca gat ttt atc tac Lys Cys Trp Phe Gly Lys Ala Gly Val Tyr Thr Asp Phe Ile Tyr 260 265 270	816
caa gga cct gtc atc ctt gtg ctg atc aac ttc ata ttt tta ttc Gln Gly Pro Val Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
aac att gta cgg att ctg atg aca aag ctc aga gct tcc acc act tca Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser 290 295 300	912
gag acc ata cag tac agg aaa gct gtt aaa gcc acc ctg gtg ctc ctg Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
cct ttg ctt ggg atc acc tac atg ctt ttc ttt gtg acg ccc ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Thr Pro Gly Glu 325 330 335	1008
gat gaa atc tca cgt atc gtc ttt atc tat ttc aac tct ttc ctg cag Asp Glu Ile Ser Arg Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln 340 345 350	1056
tcc ttt cag ggt ttc ttt gtt tca gtt ttc tac tgc ttc ctt aat agt Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser 355 360 365	1104

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Glu	Val	Arg	Ser	Ala	Val	Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	Lys		
370					375					380							
cat	tca	atc	cgt	gct	cgc	gtg	gcc	cgt	gcc	atg	tcc	att	ccc	aca	tca		1200
His	Ser	Ile	Arg	Ala	Arg	Val	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser		
385					390					395					400		
ccc	act	cgg	att	agt	ttc	cac	agc	atc	aag	caa	tct	tct	gcc	att	tga		1248
Pro	Thr	Arg	Ile	Ser	Phe	His	Ser	Ile	Lys	Gln	Ser	Ser	Ala	Ile			
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Ala	Gly	Ile	Ser	Phe	Ala	Leu	Thr	Ser	Leu	Gln	Asp	Gln	Cys	Glu	Thr		
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Leu	Gln	His	Asn	Ser	Asn	Phe	Thr	Gly	Leu	Ala	Cys	Asn	Ala	Ser	Ile		
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Asp	Met	Ile	Gly	Thr	Cys	Trp	Pro	Ser	Thr	Ala	Ala	Gly	Gln	Met	Val		
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Ala	Arg	Pro	Cys	Pro	Glu	Tyr	Phe	His	Gly	Val	Gln	Tyr	Asn	Thr	Thr		
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Gly	Asn	Val	Tyr	Arg	Glu	Cys	His	Leu	Asn	Gly	Ser	Trp	Ala	Gly	Arg		
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Gly	Asp	Tyr	Ala	Gln	Cys	Gln	Glu	Ile	Leu	Lys	Gln	Glu	Lys	Lys	Thr		
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Lys	Val	His	Tyr	His	Ile	Ala	Ile	Val	Ile	Asn	Phe	Leu	Gly	His	Ser		
				115				120				125					
Ile	Ser	Leu	Cys	Ala	Leu	Leu	Val	Ala	Phe	Ile	Leu	Phe	Leu	Arg	Leu		
				130			135				140						
Arg	Ser	Ile	Arg	Cys	Leu	Arg	Asn	Ile	Ile	His	Trp	Asn	Leu	Ile	Thr		
				145			150			155			160				
Ala	Phe	Ile	Leu	Arg	Asn	Val	Thr	Trp	Phe	Val	Met	Gln	Leu	Thr	Leu		

165                    170                    175

Ser His Glu Ala His Asp Ser Asn Val Val Trp Cys Arg Leu Val Thr  
180                    185                    190

Ile Ala His Asn Tyr Phe Tyr Val Thr Asn Phe Phe Trp Met Phe Gly  
195                    200                    205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
210                    215                    220

Lys Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe  
225                    230                    235                    240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu  
245                    250                    255

Lys Cys Trp Phe Gly Lys Lys Ala Gly Val Tyr Thr Asp Phe Ile Tyr  
260                    265                    270

Gln Gly Pro Val Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
275                    280                    285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
290                    295                    300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
305                    310                    315                    320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Thr Pro Gly Glu  
325                    330                    335

Asp Glu Ile Ser Arg Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln  
340                    345                    350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
355                    360                    365

Glu Val Arg Ser Ala Val Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
370                    375                    380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
385                    390                    395                    400

Pro Thr Arg Ile Ser Phe His Ser Ile Lys Gln Ser Ser Ala Ile  
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Cys	Ser	Leu	Leu	Asp	Ala	Phe	Gln	Asp	Ser	Phe	Leu	His	Ser	Glu	Ser		
.				20				25					30				
tcc	tct	ttc	ttt	ggc	ttt	gaa	ggt	ccc	tat	tgt	agc	gct	acc	att	gac		144
Ser	Ser	Phe	Phe	Gly	Phe	Glu	Gly	Pro	Tyr	Cys	Ser	Ala	Thr	Ile	Asp		
				35				40				45					
cag	att	ggc	acg	tgc	tgg	ccc	agg	agc	cta	gcc	ggg	gaa	ctt	gtg	gaa		192
Gln	Ile	Gly	Thr	Cys	Trp	Pro	Arg	Ser	Leu	Ala	Gly	Glu	Leu	Val	Glu		
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aga	ccc	tgc	ccg	gat	tcc	ttc	aat	ggg	atc	aga	tac	aac	aca	act	aga		240
Arg	Pro	Cys	Pro	Asp	Ser	Phe	Asn	Gly	Ile	Arg	Tyr	Asn	Thr	Thr	Arg		
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aac	gtc	tac	aga	gaa	tgc	ttt	gag	aat	gga	acc	tgg	gcg	tcc	tgg	atg		288
Asn	Val	Tyr	Arg	Glu	Cys	Phe	Glu	Asn	Gly	Thr	Trp	Ala	Ser	Trp	Met		
				85				90				95					
aat	tac	tct	cag	tgt	gtg	ccc	att	ctg	gat	aat	aag	agg	aag	tac	gcc		336
Asn	Tyr	Ser	Gln	Cys	Val	Pro	Ile	Leu	Asp	Asn	Lys	Arg	Lys	Tyr	Ala		
				100				105			110						
ctt	cat	tac	aag	att	gct	ctc	atc	ata	aac	tac	ctg	ggg	cac	tgc	atc		384
Leu	His	Tyr	Lys	Ile	Ala	Leu	Ile	Ile	Asn	Tyr	Leu	Gly	His	Cys	Ile		
				115				120			125						
tcc	atc	ttg	gct	ctc	gtt	atc	gct	ttc	ttg	ctc	ttt	ctg	tgt	ttg	agg		432
Ser	Ile	Leu	Ala	Leu	Val	Ile	Ala	Phe	Leu	Leu	Phe	Leu	Cys	Leu	Arg		
				130				135			140						
agt	ata	aga	tgc	ctt	cg	aac	att	atc	cac	tgg	aat	tta	atc	act	act		480
Ser	Ile	Arg	Cys	Leu	Arg	Asn	Ile	Ile	His	Trp	Asn	Leu	Ile	Thr	Thr		
				145				150			155		160				
ttc	atc	ctg	agg	aac	atc	atg	tgg	ttc	ctg	ctg	cag	atg	att	gac	cat		528
Phe	Ile	Leu	Arg	Asn	Ile	Met	Trp	Phe	Leu	Leu	Gln	Met	Ile	Asp	His		
				165				170				175					
aac	att	cat	gaa	agc	aac	gag	gtc	tgg	tgt	cg	tgt	atc	aca	act	att		576
Asn	Ile	His	Glu	Ser	Asn	Glu	Val	Trp	Cys	Arg	Cys	Ile	Thr	Thr	Ile		
				180				185			190						
tac	aat	tac	ttt	qtg	gtg	acc	aac	ttc	ttc	tgg	atg	ttt	gtg	gaa	gga		624

Tyr	Asn	Tyr	Phe	Val	Val	Thr	Asn	Phe	Phe	Trp	Met	Phe	Val	Glu	Gly	
195						200					205					
tgt	tac	cta	cac	aca	gct	ata	gtg	atg	aca	tac	tca	acg	gac	aaa	ctt	672
Cys	Tyr	Leu	His	Thr	Ala	Ile	Val	Met	Thr	Tyr	Ser	Thr	Asp	Lys	Leu	
210						215					220					
agg	aaa	tgg	gtg	ttc	ctc	ttc	ata	gga	tgg	tgt	att	cca	tct	ccg	atc	720
Arg	Lys	Trp	Val	Phe	Leu	Phe	Ile	Gly	Trp	Cys	Ile	Pro	Ser	Pro	Ile	
225						230				235		240				
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Ile	Val	Thr	Trp	Ala	Ile	Cys	Lys	Leu	Phe	Tyr	Glu	Asn	Glu	Gln	Cys	
245						250				255						
tgg	att	ggg	aag	gag	ccc	ggg	aaa	tac	att	gat	tac	att	tac	cag	ggc	816
Trp	Ile	Gly	Lys	Glu	Pro	Gly	Lys	Tyr	Ile	Asp	Tyr	Ile	Tyr	Gln	Gly	
260						265				270						
cg	gtg	att	ctc	gta	ctt	ctg	ata	aat	ttt	gtg	ttc	tta	ttc	aac	att	864
Arg	Val	Ile	Leu	Val	Leu	Leu	Ile	Asn	Phe	Val	Phe	Leu	Phe	Asn	Ile	
275						280				285						
gta	aga	att	ttg	atg	aca	aaa	ctg	aga	gct	tca	act	aca	tct	gaa	acg	912
Val	Arg	Ile	Leu	Met	Thr	Lys	Leu	Arg	Ala	Ser	Thr	Thr	Ser	Glu	Thr	
290						295				300						
ata	cag	tac	agg	aag	gct	gtg	aag	gca	acg	tta	gtc	ctt	ctc	cct	ctt	960
Ile	Gln	Tyr	Arg	Lys	Ala	Val	Lys	Ala	Thr	Leu	Val	Leu	Leu	Pro	Leu	
305						310				315		320				
ctg	gga	atc	acc	tac	atg	ctc	ttc	gtc	aac	cct	gga	gag	gat	gac		1008
Leu	Gly	Ile	Thr	Tyr	Met	Leu	Phe	Phe	Val	Asn	Pro	Gly	Glu	Asp	Asp	
325						330				335						
gtt	tct	cag	atc	gtt	ttt	att	tac	ttc	aac	tcg	ttt	ctt	cag	tcc	ttt	1056
Val	Ser	Gln	Ile	Val	Phe	Ile	Tyr	Phe	Asn	Ser	Phe	Leu	Gln	Ser	Phe	
340						345				350						
cag	gg	t	tt	gt	tca	gt	tt	ta	tc	tt	aat	gg	gag	gt		1104
Gln	Gly	Phe	Phe	Val	Ser	Val	Phe	Tyr	Cys	Phe	Leu	Asn	Gly	Glu	Val	
355						360				365						
cg	tg	gt	gc	ag	aa	ag	tg	ca	cg	tg	ca	gac	ca	cat	tct	1152
Arg	Ser	Ala	Ala	Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	His	His	Ser	
370						375				380						
ctg	cg	gt	cg	gt	gc	ag	gc	at	tc	at	cc	ac	tc	cc	ac	1200
Leu	Arg	Val	Arg	Val	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser	Pro	Thr	
385						390				395		400				
aga	atc	agc	ttt	cac	agt	ata	aag	caa	acg	gca	gcc	gtc	tga			1242
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Cys Ser Leu Leu Asp Ala Phe Gln Asp Ser Phe Leu His Ser Glu Ser  
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Ser Ser Phe Phe Gly Phe Glu Gly Pro Tyr Cys Ser Ala Thr Ile Asp  
35 40 45

Gln Ile Gly Thr Cys Trp Pro Arg Ser Leu Ala Gly Glu Leu Val Glu  
50 55 60

Arg Pro Cys Pro Asp Ser Phe Asn Gly Ile Arg Tyr Asn Thr Thr Arg  
65 70 75 80

Asn Val Tyr Arg Glu Cys Phe Glu Asn Gly Thr Trp Ala Ser Trp Met  
85 90 95

Asn Tyr Ser Gln Cys Val Pro Ile Leu Asp Asn Lys Arg Lys Tyr Ala  
100 105 110

Leu His Tyr Lys Ile Ala Leu Ile Ile Asn Tyr Leu Gly His Cys Ile  
115 120 125

Ser Ile Leu Ala Leu Val Ile Ala Phe Leu Leu Phe Leu Cys Leu Arg  
130 135 140

Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Thr Thr  
145 150 155 160

Phe Ile Leu Arg Asn Ile Met Trp Phe Leu Leu Gln Met Ile Asp His  
165 170 175

Asn Ile His Glu Ser Asn Glu Val Trp Cys Arg Cys Ile Thr Thr Ile  
180 185 190

Tyr Asn Tyr Phe Val Val Thr Asn Phe Phe Trp Met Phe Val Glu Gly  
195 200 205

Cys Tyr Leu His Thr Ala Ile Val Met Thr Tyr Ser Thr Asp Lys Leu  
210 215 220

Arg Lys Trp Val Phe Leu Phe Ile Gly Trp Cys Ile Pro Ser Pro Ile  
225 230 235 240

Ile	Val	Thr	Trp	Ala	Ile	Cys	Lys	Leu	Phe	Tyr	Glu	Asn	Glu	Gln	Cys
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Trp	Ile	Gly	Lys	Glu	Pro	Gly	Lys	Tyr	Ile	Asp	Tyr	Ile	Tyr	Gln	Gly
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Arg	Val	Ile	Leu	Val	Leu	Leu	Ile	Asn	Phe	Val	Phe	Leu	Phe	Asn	Ile
275							280						285		
Val	Arg	Ile	Leu	Met	Thr	Lys	Leu	Arg	Ala	Ser	Thr	Thr	Ser	Glu	Thr
290						295						300			
Ile	Gln	Tyr	Arg	Lys	Ala	Val	Lys	Ala	Thr	Leu	Val	Leu	Leu	Pro	Leu
305						310				315				320	
Leu	Gly	Ile	Thr	Tyr	Met	Leu	Phe	Phe	Val	Asn	Pro	Gly	Glu	Asp	Asp
325						330						335			
Val	Ser	Gln	Ile	Val	Phe	Ile	Tyr	Phe	Asn	Ser	Phe	Leu	Gln	Ser	Phe
340						345						350			
Gln	Gly	Phe	Phe	Val	Ser	Val	Phe	Tyr	Cys	Phe	Leu	Asn	Gly	Glu	Val
355						360						365			
Arg	Ser	Ala	Ala	Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	His	His	Ser
370						375					380				
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385						390				395			400		
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1									5				10		15
ttc	tct	ggg	gcc	aca	gct	gag	ctc	aca	tgc	gac	act	ctg	ctc	ctg	ctc
Phe	Ser	Gly	Ala	Thr	Ala	Glu	Leu	Thr	Cys	Asp	Thr	Leu	Leu	Leu	

48

96

20	25	30	
tcc acc aac cgc aca gct cgc aca tta ata cta tgg aac cag acg tcg Ser Thr Asn Arg Thr Ala Arg Thr Leu Ile Leu Trp Asn Gln Thr Ser 35 40 45			144
agc tca agt aat gcc aca ggt aca agc tca agt aat gcc aca ggt aca Ser Ser Asn Ala Thr Gly Thr Ser Ser Asn Ala Thr Gly Thr 50 55 60			192
agc tca agc aat gcc aca ggt ttg ttc tgt aat ata tct ata gat ggc Ser Ser Ser Asn Ala Thr Gly Leu Phe Cys Asn Ile Ser Ile Asp Gly 65 70 75 80			240
atc ggg acg tgt tgg ccc agg agc aac gca ggg gaa ata gta tca cgt Ile Gly Thr Cys Trp Pro Arg Ser Asn Ala Gly Glu Ile Val Ser Arg 85 90 95			288
cca tgt cct gag acc ttc ttg ggt gtc cgc tac aac acc acc aat aac Pro Cys Pro Glu Thr Phe Leu Gly Val Arg Tyr Asn Thr Thr Asn Asn 100 105 110			336
gtc tac aga gaa tgc ctc gcc aat gga acg tgg gcg aag aag ggg aat Val Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Lys Lys Gly Asn 115 120 125			384
tat tct cag tgt cag gaa att ctc aat gaa gag aaa aag acg aag ctg Tyr Ser Gln Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Leu 130 135 140			432
cac tac cac att gca gtg att ata aac tac ctg ggc cac tgc atc tct His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser 145 150 155 160			480
ctc gga gcc ctg ctg gtt gcc ttc att ctc ttt atg agg ctg agg atg Leu Gly Ala Leu Leu Val Ala Phe Ile Leu Phe Met Arg Leu Arg Met 165 170 175			528
atc cgc tgc ctc agg aac atc att cac tgg aat ctg att atg gct ttc Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Met Ala Phe 180 185 190			576
atc ctg cgc aat gct aca tgg ttc gta gtg cag ctg acc atg aac cca Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro 195 200 205			624
gag gtg cat gag agc aat gtg atc tgg tgc agg ctg gtt aca gca gcg Glu Val His Glu Ser Asn Val Ile Trp Cys Arg Leu Val Thr Ala Ala 210 215 220			672
tat aat tac ttt cat gtg acc aac ttc ttc tgg atg ttt ggt gag ggc Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly 225 230 235 240			720
tgc tat ctg cac acg gcc atc gtg ctg act tac tcc act gat aag ctc Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu 245 250 255			768
agg aag tgg ctg ttc atc tgt atc ggc tgg tgt att ccc ttt cct atc Arg Lys Trp Leu Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile 260 265 270			816

atc gtt gca tgg gcc att ggt aag ctg tat tac gac aat gaa aag tgc			864
Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys			
275	280	285	
tgg ttt gga aaa cga gct ggt gtt tat act gac tac atc tat cag ggc			912
Trp Phe Gly Lys Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly			
290	295	300	
ccc atg atc ctt gtt ctt ctg atc aac ttt att ttc ctt ttc aac atc			960
Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile			
305	310	315	320
gtg agg atc ctg atg aca aag cta aga gcc tcc acc aca tca gag acg			1008
Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr			
325	330	335	
att cag tac agg aaa gct gtg aag gcc act ctg gtc ctg ctg cct ctc			1056
Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu			
340	345	350	
ctc ggg atc acc tac atg ctt ttc ttt gtt aac cct gga gag gac gag			1104
Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu			
355	360	365	
atc tcc caa atc gtc ttc atc tat ttc aat tct ttc ctc gag tcc ttt			1152
Ile Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe			
370	375	380	
caa ggt ttc ttc gtg tct gtg ttt tat tgc ttc ctg aac agt gaa gtc			1200
Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val			
385	390	395	400
cgt tcg gct gtt cg <sup>g</sup> aag cgc tgg cac cgc cg <sup>g</sup> cag gac aag cac tca			1248
Arg Ser Ala Val Arg Lys Arg Trp His Arg Arg Gln Asp Lys His Ser			
405	410	415	
atc cg <sup>g</sup> gca cg <sup>g</sup> gtg gca cg <sup>g</sup> gcc atg tcc att ccc acc tcg cct act			1296
Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr			
420	425	430	
cg <sup>g</sup> gtc agc ttc cac agc atc aag caa tcc tca gca gtg tga			1338
Arg Val Ser Phe His Ser Ile Lys Gln Ser Ser Ala Val			
435	440	445	

<210> 34  
<211> 445  
<212> PRT  
<213> Ameiurus nebulosus

<400> 34

Met His Phe Leu Leu Arg Pro Gln Val Phe Ser Ile Trp Ile Thr Leu  
1 5 10 15

Phe Ser Gly Ala Thr Ala Glu Leu Thr Cys Asp Thr Leu Leu Leu  
20 25 30

Ser Thr Asn Arg Thr Ala Arg Thr Leu Ile Leu Trp Asn Gln Thr Ser  
35 40 45

Ser Ser Ser Asn Ala Thr Gly Thr Ser Ser Ser Asn Ala Thr Gly Thr  
50 55 60

Ser Ser Ser Asn Ala Thr Gly Leu Phe Cys Asn Ile Ser Ile Asp Gly  
65 70 75 80

Ile Gly Thr Cys Trp Pro Arg Ser Asn Ala Gly Glu Ile Val Ser Arg  
85 90 95

Pro Cys Pro Glu Thr Phe Leu Gly Val Arg Tyr Asn Thr Thr Asn Asn  
100 105 110

Val Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Lys Lys Gly Asn  
115 120 125

Tyr Ser Gln Cys Gln Glu Ile Leu Asn Glu Glu Lys Lys Ser Lys Leu  
130 135 140

His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Ile Ser  
145 150 155 160

Leu Gly Ala Leu Leu Val Ala Phe Ile Leu Phe Met Arg Leu Arg Met  
165 170 175

Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Met Ala Phe  
180 185 190

Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro  
195 200 205

Glu Val His Glu Ser Asn Val Ile Trp Cys Arg Leu Val Thr Ala Ala  
210 215 220

Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly  
225 230 235 240

Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu  
245 250 255

Arg Lys Trp Leu Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile  
260 265 270

Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys

275	280	285
Trp Phe Gly Lys Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly		
290	295	300
Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile		
305	310	315
Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr		
325	330	335
Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu		
340	345	350
Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu		
355	360	365
Ile Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe		
370	375	380
Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val		
385	390	395
Arg Ser Ala Val Arg Lys Arg Trp His Arg Arg Gln Asp Lys His Ser		
405	410	415
Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr		
420	425	430
Arg Val Ser Phe His Ser Ile Lys Gln Ser Ser Ala Val		
435	440	445
<210> 35		
<211> 1442		
<212> DNA		
<213> Ameiurus nebulosus		
<220>		
<221> CDS		
<222> (102)..(1388)		
<400> 35		
cagaaatatg gagatggaga ctgctttaca gtcactcggt tcaaacaggt tgtaagctg		60
aactgattaa taatcctgcc agctgatcaa ctggaaagggt a atg tgg atc tgc cta		116
Met Trp Ile Cys Leu		
1 5		
atg cta aag gtc ttg tct atc ttg tct ttt gtg gtt gtg aag gtg tca		
Met Leu Lys Val Leu Ser Ile Leu Ser Phe Val Val Val Lys Val Ser		164

10	15	20	
gct gat ctt acc tgc gat gcc gtg cta atg ctg gct tct gga aac cac Ala Asp Leu Thr Cys Asp Ala Val Leu Met Leu Ala Ser Gly Asn His 25	30	35	212
aca ttg tac cat ctg gat gcc gct aat cac tct gac act aat aac tcg Thr Leu Tyr His Leu Asp Ala Ala Asn His Ser Asp Thr Asn Asn Ser 40	45	50	260
ggt gtg ttt tgc agc aca gtt atc gat ggc atc ggc acc tgc tgg ccg Gly Val Phe Cys Ser Thr Val Ile Asp Gly Ile Gly Thr Cys Trp Pro 55	60	65	308
cgc agc gtg gcc ggg gag atg gtg tcg cgt ccg tgt ccg gaa ttc ctc Arg Ser Val Ala Gly Glu Met Val Ser Arg Pro Cys Pro Glu Phe Leu 70	75	80	356
tac gga gtc cga tac aac acc acc aat aaa atc ttc cgg aaa tgt ctt Tyr Gly Val Arg Tyr Asn Thr Thr Asn Lys Ile Phe Arg Lys Cys Leu 90	95	100	404
gct aat gga acc tgg gcg ccc aaa agc aac tac tct cag tgc aag gct Ala Asn Gly Thr Trp Ala Pro Lys Ser Asn Tyr Ser Gln Cys Lys Ala 105	110	115	452
att ctc aat gta cag agg aag agc aag ctg cat tat cga atc gct gtc Ile Leu Asn Val Gln Arg Lys Ser Lys Leu His Tyr Arg Ile Ala Val 120	125	130	500
atc att aac tac ctg ggt cac tgc ttg tca ctg ttc act ctt ctt atc Ile Ile Asn Tyr Leu Gly His Cys Leu Ser Leu Phe Thr Leu Leu Ile 135	140	145	548
gcc ttc ata atc ttc tta cga ctc agg agt att cgc tgt tta agg aac Ala Phe Ile Ile Phe Leu Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn 150	155	160	596
atc atc cac tgg aat cta acc tct gcc ttc atc ctg aga aat gcg acg Ile Ile His Trp Asn Leu Thr Ser Ala Phe Ile Leu Arg Asn Ala Thr 170	175	180	644
tgg ttc atc gtt cag ctc acc atg aac cct gat gta cac gag agc aac Trp Phe Ile Val Gln Leu Thr Met Asn Pro Asp Val His Glu Ser Asn 185	190	195	692
gtg cca tgg tgc cgt tta gtg acg acg gca tat aac tac ttc cac atg Val Pro Trp Cys Arg Leu Val Thr Thr Ala Tyr Asn Tyr Phe His Met 200	205	210	740
gcc aat ttt ttc tgg atg ttc ggc gaa ggc tgt tat ctt cac aca gcc Ala Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala 215	220	225	788
atc gtg ctc acc tac tcc act gac aaa ctc aag aaa tgg atg ttc atc Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Lys Lys Trp Met Phe Ile 230	235	240	836
tgc atc gga tgg tgt att cct tcg cct att atc gtc gcc tgg gcc atc Cys Ile Gly Trp Cys Ile Pro Ser Pro Ile Ile Val Ala Trp Ala Ile 250	255	260	884

<210> 36  
<211> 428  
<212> PRT  
<213> Ameiurus nebulosus  
  
<400> 36

Met Trp Ile Cys Leu Met Leu Lys Val Leu Ser Ile Leu Ser Phe Val  
1 5 10 15

Val Val Lys Val Ser Ala Asp Leu Thr Cys Asp Ala Val Leu Met Leu  
20 25 30

Ala Ser Gly Asn His Thr Leu Tyr His Leu Asp Ala Ala Asn His Ser  
35 40 45

Asp Thr Asn Asn Ser Gly Val Phe Cys Ser Thr Val Ile Asp Gly Ile  
50 55 60

Gly Thr Cys Trp Pro Arg Ser Val Ala Gly Glu Met Val Ser Arg Pro  
65 70 75 80

Cys Pro Glu Phe Leu Tyr Gly Val Arg Tyr Asn Thr Thr Asn Lys Ile  
85 90 95

Phe Arg Lys Cys Leu Ala Asn Gly Thr Trp Ala Pro Lys Ser Asn Tyr  
100 105 110

Ser Gln Cys Lys Ala Ile Leu Asn Val Gln Arg Lys Ser Lys Leu His  
115 120 125

Tyr Arg Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys Leu Ser Leu  
130 135 140

Phe Thr Leu Leu Ile Ala Phe Ile Ile Phe Leu Arg Leu Arg Ser Ile  
145 150 155 160

Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Thr Ser Ala Phe Ile  
165 170 175

Leu Arg Asn Ala Thr Trp Phe Ile Val Gln Leu Thr Met Asn Pro Asp  
180 185 190

Val His Glu Ser Asn Val Pro Trp Cys Arg Leu Val Thr Thr Ala Tyr  
195 200 205

Asn Tyr Phe His Met Ala Asn Phe Phe Trp Met Phe Gly Glu Gly Cys  
210 215 220

Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Lys  
225 230 235 240

Lys Trp Met Phe Ile Cys Ile Gly Trp Cys Ile Pro Ser Pro Ile Ile  
245 250 255

Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp  
260 265 270

Phe Gly Lys Arg Ala Gly Ile Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro  
275 280 285

Met Ile Leu Val Leu Met Ile Asn Phe Val Phe Leu Phe Asn Ile Val  
290 295 300

Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser Glu Thr Ile  
305 310 315 320

Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu Pro Leu Leu  
325 330 335

Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Ile  
340 345 350

Ser Gln Ile Val Phe Ile Tyr Phe Asn Ser Phe Leu Gln Ser Phe Gln  
355 360 365

Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg  
370 375 380

Ser Ala Val Arg Lys His Trp His Arg Trp Gln Asp His His Ser Ile  
385 390 395 400

Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Ser Arg  
405 410 415

Leu Ser Phe His Ser Ile Lys Gln Ser Thr Ser Val  
420 425

<210> 37  
<211> 1218  
<212> DNA  
<213> Ameiurus nebulosus

<220>  
<221> CDS  
<222> (1)..(1218)

<400> 37  
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Met Glu Val Ser Leu Leu Glu Leu Ser Val Glu Val Asn Cys Ser  
1 5 10 15

ctc gcg gac gcg ttt gga gac cct gcg tac gga aac gca tca gac gct 96  
Leu Ala Asp Ala Phe Gly Asp Pro Ala Tyr Gly Asn Ala Ser Asp Ala  
20 25 30

ctg tac tgc aac gcc acg gcg gat gag atc ggc acg tgc tgg ccg agg 144  
Leu Tyr Cys Asn Ala Thr Ala Asp Glu Ile Gly Thr Cys Trp Pro Arg

35	40	45	
agc ggc gcg ggg aga gtg gtg gcg cg <sup>g</sup> ccg tgc ccc gac ttc atc aac Ser Gly Ala Gly Arg Val Val Ala Arg Pro Cys Pro Asp Phe Ile Asn	50	55	192
		60	
ggg gtc aag tac aac agc acc agg agc g <sup>c</sup> g <sup>g</sup> tat aga gaa tgc ctg gag Gly Val Lys Tyr Asn Ser Thr Arg Ser Ala Tyr Arg Glu Cys Leu Glu	65	70	240
		75	
		80	
aac ggc aca tgg gct ttc aag atc aac tac tcc agc tgc gag ccc att Asn Gly Thr Trp Ala Phe Lys Ile Asn Tyr Ser Ser Cys Glu Pro Ile	85	90	288
		95	
tta gag gaa aag agg aag tac ccg gtc cac tac aag atc gct ctc atc Leu Glu Glu Lys Arg Lys Tyr Pro Val His Tyr Lys Ile Ala Leu Ile	100	105	336
		110	
atc aac tat ttg gga cac tgc ata tct gta ggt gct ctc gtc atc gcc Ile Asn Tyr Leu Gly His Cys Ile Ser Val Gly Ala Leu Val Ile Ala	115	120	384
		125	
ttc gtt ctc ttc ctg tgc ttg aga agc atc c <sup>g</sup> g <sup>t</sup> t <sup>t</sup> g <sup>t</sup> c <sup>g</sup> a <sup>a</sup> t <sup>t</sup> g <sup>a</sup> Phe Val Leu Phe Leu Cys Leu Arg Ser Ile Arg Cys Leu Arg Asn Val	130	135	432
		140	
att cac tgg aat tta ata acc acc ttc atc ctg agg aac atc atg tgg Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Met Trp	145	150	480
		155	
		160	
ctt ctg ctg cag ctc atc gac cac aac atc cat gaa agg aac gag ccg Leu Leu Leu Gln Leu Ile Asp His Asn Ile His Glu Arg Asn Glu Pro	165	170	528
		175	
tgg tgc cgc ctc ata acc acc gtc tat aac tat ttt gtg gtg acg aat Trp Cys Arg Leu Ile Thr Thr Val Tyr Asn Tyr Phe Val Val Thr Asn	180	185	576
		190	
ttt ttc tgg atg ttc gtg gag ggc t <sup>t</sup> g <sup>t</sup> t <sup>t</sup> c <sup>t</sup> c <sup>a</sup> c <sup>a</sup> g <sup>c</sup> c <sup>t</sup> atc g <sup>t</sup> Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val	195	200	624
		205	
atg acc tac tcc acc gac aag ctc c <sup>g</sup> a <sup>a</sup> t <sup>g</sup> g <sup>t</sup> c <sup>t</sup> c <sup>t</sup> t <sup>c</sup> atc Met Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Val Phe Leu Phe Ile	210	215	672
		220	
ggg tgg tgt att ccg tgt ccg gtc atc att g <sup>c</sup> g <sup>g</sup> t <sup>g</sup> g <sup>c</sup> g <sup>t</sup> g <sup>g</sup> a <sup>a</sup> Gly Trp Cys Ile Pro Cys Pro Val Ile Ile Ala Trp Ala Val Gly Lys	225	230	720
		235	
		240	
ctg tac aac gaa aac gaa cag tgc tgg ttt gga aaa gaa ccc gga aaa Leu Tyr Asn Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Lys	245	250	768
		255	
tac gtg gac tac att tat cag ggt cct gtg att gtt gtt ctg ctg ata Tyr Val Asp Tyr Ile Tyr Gln Gly Pro Val Ile Val Val Leu Leu Ile	260	265	816
		270	
aac ttc gtg ttc ctg ttc aac atc gta cgt att ctc atg acg aag ctg Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu	275	280	864
		285	

cga gcc tcc acc acg tca gag acc ata cag tac agg aaa gcg gtg aag 912  
 Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys  
 290 295 300  
  
 gcg acg tta gtg ctg ctt cct ctg ctc ggc atc aca tac atg ctg ttc 960  
 Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe  
 305 310 315 320  
  
 ttc gtg aat ccg ggg gat gat gac atc tca cag att gtc ttt att tat 1008  
 Phe Val Asn Pro Gly Asp Asp Asp Ile Ser Gln Ile Val Phe Ile Tyr  
 325 330 335  
  
 ttc aat tcc ttc ctg cag tcc ttt cag ggt ttc ttc gtc tca gtg ttt 1056  
 Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe  
 340 345 350  
  
 tac tgc ttc ctc aac ggt gag gta cggt tca gca gta agg aaa cgt tgg 1104  
 Tyr Cys Phe Leu Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg Trp  
 355 360 365  
  
 cac aga tgg cag gat aac cac gct ctc cgt gtt cggt gtt gcc agg gcg 1152  
 His Arg Trp Gln Asp Asn His Ala Leu Arg Val Arg Val Ala Arg Ala  
 370 375 380  
  
 atg tcc atc cca aca tca cct act cgc atc agc ttc cac agc att aaa 1200  
 Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys  
 385 390 395 400  
  
 cac acc acc gct gtg tga 1218  
 His Thr Thr Ala Val  
 405  
  
 <210> 38  
 <211> 405  
 <212> PRT  
 <213> Ameiurus nebulosus  
  
 <400> 38  
  
 Met Glu Val Ser Leu Leu Glu Leu Leu Ser Val Glu Val Asn Cys Ser 1224  
 1 5 10 15  
  
 Leu Ala Asp Ala Phe Gly Asp Pro Ala Tyr Gly Asn Ala Ser Asp Ala  
 20 25 30  
  
 Leu Tyr Cys Asn Ala Thr Ala Asp Glu Ile Gly Thr Cys Trp Pro Arg  
 35 40 45  
  
 Ser Gly Ala Gly Arg Val Val Ala Arg Pro Cys Pro Asp Phe Ile Asn  
 50 55 60  
  
 Gly Val Lys Tyr Asn Ser Thr Arg Ser Ala Tyr Arg Glu Cys Leu Glu  
 65 70 75 80

Asn Gly Thr Trp Ala Phe Lys Ile Asn Tyr Ser Ser Cys Glu Pro Ile  
 85 90 95  
 Leu Glu Glu Lys Arg Lys Tyr Pro Val His Tyr Lys Ile Ala Leu Ile  
 100 105 110  
 Ile Asn Tyr Leu Gly His Cys Ile Ser Val Gly Ala Leu Val Ile Ala  
 115 120 125  
 Phe Val Leu Phe Leu Cys Leu Arg Ser Ile Arg Cys Leu Arg Asn Val  
 130 135 140  
 Ile His Trp Asn Leu Ile Thr Thr Phe Ile Leu Arg Asn Ile Met Trp  
 145 150 155 160  
 Leu Leu Leu Gln Leu Ile Asp His Asn Ile His Glu Arg Asn Glu Pro  
 165 170 175  
 Trp Cys Arg Leu Ile Thr Thr Val Tyr Asn Tyr Phe Val Val Thr Asn  
 180 185 190  
 Phe Phe Trp Met Phe Val Glu Gly Cys Tyr Leu His Thr Ala Ile Val  
 195 200 205  
 Met Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Val Phe Leu Phe Ile  
 210 215 220  
 Gly Trp Cys Ile Pro Cys Pro Val Ile Ile Ala Trp Ala Val Gly Lys  
 225 230 235 240  
 Leu Tyr Asn Glu Asn Glu Gln Cys Trp Phe Gly Lys Glu Pro Gly Lys  
 245 250 255  
 Tyr Val Asp Tyr Ile Tyr Gln Gly Pro Val Ile Val Val Leu Leu Ile  
 260 265 270  
 Asn Phe Val Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu  
 275 280 285  
 Arg Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys  
 290 295 300  
 Ala Thr Leu Val Leu Leu Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe  
 305 310 315 320  
 Phe Val Asn Pro Gly Asp Asp Ile Ser Gln Ile Val Phe Ile Tyr

325	330	335
Phe Asn Ser Phe Leu Gln Ser Phe Gln Gly Phe Phe Val Ser Val Phe 340	345	350
Tyr Cys Phe Leu Asn Gly Glu Val Arg Ser Ala Val Arg Lys Arg Trp 355	360	365
His Arg Trp Gln Asp Asn His Ala Leu Arg Val Arg Val Ala Arg Ala 370	375	380
Met Ser Ile Pro Thr Ser Pro Thr Arg Ile Ser Phe His Ser Ile Lys 385	390	395
His Thr Thr Ala Val 405		
<210> 39		
<211> 1248		
<212> DNA		
<213> Bos taurus		
<220>		
<221> CDS		
<222> (1)..(1248)		
<400> 39		
atg gga cgg cgc ccg cag ctc cgg ctt gtc aag gcc ctt ctc ctc ctg Met Gly Arg Arg Pro Gln Leu Arg Leu Val Lys Ala Leu Leu Leu Leu 1 5 10 15		48
ggg ctg aac tcc atc tct gcc tcc ctc cag gac cag cat tgc gag agc Gly Leu Asn Ser Ile Ser Ala Ser Leu Gln Asp Gln His Cys Glu Ser 20 25 30		96
ttg tcc gtg gcc agc aac gtc tct gga ctg cag tgc aat gct tcc gtg Leu Ser Val Ala Ser Asn Val Ser Gly Leu Gln Cys Asn Ala Ser Val 35 40 45		144
gac ctt att ggt acc tgc tgg ccc cag agt cct gca ggg cag ttg gtg Asp Leu Ile Gly Thr Cys Trp Pro Gln Ser Pro Ala Gly Gln Leu Val 50 55 60		192
gtt cga ccc tgc ctc gta ttt ttc tat ggt gtc cgc tac aat acc aca Val Arg Pro Cys Leu Val Phe Phe Tyr Gly Val Arg Tyr Asn Thr Thr 65 70 75 80		240
aac aac ggc tac cgg gag tgc ctg gcc aat ggc acg tgg gcc gcc cgc Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly Thr Trp Ala Ala Arg 85 90 95		288
gtg aac tac tcc gag tgc caa gag atc ctc agc gag gag aag aag agc Val Asn Tyr Ser Glu Cys Gln Glu Ile Leu Ser Glu Glu Lys Lys Ser 100 105 110		336

aag gtg cac tac cac atc gct gtc atc atc aac tac cta ggc cac tgc Lys Val His Tyr His Ile Ala Val Ile Ile Asn Tyr Leu Gly His Cys 115 120 125	384
atc tcc ctg gcg gcc ctc ctg gtg gcc ttt gtc ctc ttt ctg cggt ctc Ile Ser Leu Ala Ala Leu Leu Val Ala Phe Val Leu Phe Leu Arg Leu 130 135 140	432
agg agc atc cgg tgc ctg aga aac atc atc cac tgg aac ctc atc tca Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His Trp Asn Leu Ile Ser 145 150 155 160	480
gcc ttc atc ctg cgc aat gcc acg tgg ttc gtg gtc cag ctc acc atg Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met 165 170 175	528
agc ccc gaa gtc cat cag agc aac gtg ggc tgg tgc agg ctg gtg aca Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr 180 185 190	576
gcc gcc tac aac tac ttc cac gtg acc aac ttc ttc tgg atg ttc ggt Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly 195 200 205	624
gag ggc tgc tac ctg cac acg gcc atc gtg ctc acg tac tcc aca gac Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp 210 215 220	672
cgg ctg cga aag tgg atg ttt atc tgc atc ggc tgg ggt gtg cct ttc Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe 225 230 235 240	720
ccc atc att gtg gcc tgg gcc att ggg aag ctg tac tac gac aat gag Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu 245 250 255	768
aag tgc tgg ttt ggc aaa agg cct ggg gtg tac act gac tac atc tac Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr 260 265 270	816
cag ggc ccg atg atc ttg gtc ctg ctg atc aat ttc atc ttc ctt ttc Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe 275 280 285	864
aac atc gtc cgc atc ctc atg acc aaa ctc cgg gca tcc acc acc tct Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser 290 295 300	912
gag acc att cag tac agg aag gct gtg aag gcc act ctg gtg ctg ctc Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu 305 310 315 320	960
ccc ctc ctg ggc atc acg tac atg ctg ttc ttc gtg aac cct ggg gag Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu 325 330 335	1008
gac gag gtc tcc agg gtc gtc ttc atc tac ttc aac tcc ttc ctg gaa Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu 340 345 350	1056
tct ttc cag ggc ttc ttc gtg tct gtg ttc tac tgc ttc ctc aac agc	1104

Ser	Phe	Gln	Gly	Phe	Phe	Val	Ser	Val	Phe	Tyr	Cys	Phe	Leu	Asn	Ser
355							360					365			
gag gtc cgc tct gcc atc cg <sup>g</sup> aag agg tgg cac cgc tgg cag gac aag															1152
Glu	Val	Arg	Ser	Ala	Ile	Arg	Lys	Arg	Trp	His	Arg	Trp	Gln	Asp	Lys
370					375					380					
cac	tca	atc	cgt	gcc	cgc	gtg	gct	cgc	gcc	atg	tcc	atc	ccc	acc	tcc
His	Ser	Ile	Arg	Ala	Arg	Val	Ala	Arg	Ala	Met	Ser	Ile	Pro	Thr	Ser
385						390				395			400		
ccc	acc	cgt	gtc	agc	ttt	cac	agc	atc	aag	cag	tcc	aca	gca	gtg	tga
Pro	Thr	Arg	Val	Ser	Phe	His	Ser	Ile	Lys	Gln	Ser	Thr	Ala	Val	
						405			410			415			
<210> 40															
<211> 415															
<212> PRT															
<213> Bos taurus															
<400> 40															
Met	Gly	Arg	Arg	Pro	Gln	Leu	Arg	Leu	Val	Lys	Ala	Leu	Leu	Leu	Leu
1					5				10			15			
Gly	Leu	Asn	Ser	Ile	Ser	Ala	Ser	Leu	Gln	Asp	Gln	His	Cys	Glu	Ser
					20			25				30			
Leu	Ser	Val	Ala	Ser	Asn	Val	Ser	Gly	Leu	Gln	Cys	Asn	Ala	Ser	Val
					35		40				45				
Asp	Leu	Ile	Gly	Thr	Cys	Trp	Pro	Gln	Ser	Pro	Ala	Gly	Gln	Leu	Val
					50		55			60					
Val	Arg	Pro	Cys	Leu	Val	Phe	Phe	Tyr	Gly	Val	Arg	Tyr	Asn	Thr	Thr
					65		70		75			80			
Asn	Asn	Gly	Tyr	Arg	Glu	Cys	Leu	Ala	Asn	Gly	Thr	Trp	Ala	Ala	Arg
					85				90			95			
Val	Asn	Tyr	Ser	Glu	Cys	Gln	Glu	Ile	Leu	Ser	Glu	Glu	Lys	Lys	Ser
					100			105			110				
Lys	Val	His	Tyr	His	Ile	Ala	Val	Ile	Ile	Asn	Tyr	Leu	Gly	His	Cys
					115			120			125				
Ile	Ser	Leu	Ala	Ala	Leu	Leu	Val	Ala	Phe	Val	Leu	Phe	Leu	Arg	Leu
						130		135			140				
Arg	Ser	Ile	Arg	Cys	Leu	Arg	Asn	Ile	Ile	His	Trp	Asn	Leu	Ile	Ser
					145			150			155			160	

Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val Val Gln Leu Thr Met  
165 170 175

Ser Pro Glu Val His Gln Ser Asn Val Gly Trp Cys Arg Leu Val Thr  
180 185 190

Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe Phe Trp Met Phe Gly  
195 200 205

Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp  
210 215 220

Arg Leu Arg Lys Trp Met Phe Ile Cys Ile Gly Trp Gly Val Pro Phe  
225 230 235 240

Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu  
245 250 255

Lys Cys Trp Phe Gly Lys Arg Pro Gly Val Tyr Thr Asp Tyr Ile Tyr  
260 265 270

Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn Phe Ile Phe Leu Phe  
275 280 285

Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg Ala Ser Thr Thr Ser  
290 295 300

Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala Thr Leu Val Leu Leu  
305 310 315 320

Pro Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe Val Asn Pro Gly Glu  
325 330 335

Asp Glu Val Ser Arg Val Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu  
340 345 350

Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr Cys Phe Leu Asn Ser  
355 360 365

Glu Val Arg Ser Ala Ile Arg Lys Arg Trp His Arg Trp Gln Asp Lys  
370 375 380

His Ser Ile Arg Ala Arg Val Ala Arg Ala Met Ser Ile Pro Thr Ser  
385 390 395 400

Pro	Thr	Arg	Val	Ser	Phe	His	Ser	Ile	Lys	Gln	Ser	Thr	Ala	Val	
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cgaggatttg	gagccccgac	ggcagcggga	gcggagccgg	ccatgccccg	ggtcgttggg										120
tgcggaggg	gctaagg	atg	gtg	ccc	ggc	ccg	cgt	cct	gcc	ctc	ctc	ctc			170
		Met	Val	Pro	Gly	Pro	Arg	Pro	Ala	Leu	Leu	Leu			
		1		5					10						
ctc	ctc	ttt	ctc	ctg	cag	gcf	ttt	ctc	ctc	tgg	gat	agt	ccc	gtt	gca
Leu	Leu	Phe	Leu	Leu	Gln	Ala	Phe	Leu	Leu	Trp	Asp	Ser	Pro	Val	Ala
		15		20						25					218
gcc	tcc	atc	caa	gag	cag	tac	tgt	gag	agc	ctg	ctg	ccc	acc	acc	aac
Ala	Ser	Ile	Gln	Glu	Gln	Tyr	Cys	Glu	Ser	Leu	Leu	Pro	Thr	Thr	Asn
		30		35				40							266
cac	aca	gga	cct	cag	tgc	aac	gcc	tcg	gtg	gac	ctg	att	ggc	acg	tgc
His	Thr	Gly	Pro	Gln	Cys	Asn	Ala	Ser	Val	Asp	Leu	Ile	Gly	Thr	Cys
		45		50				55							314
tgg	ccc	cgc	agt	gca	gtg	gga	caa	ctg	gtg	gct	cgg	ccc	tgc	ccc	gag
Trp	Pro	Arg	Ser	Ala	Val	Gly	Gln	Leu	Val	Ala	Arg	Pro	Cys	Pro	Glu
		60		65				70			75				362
tat	ttc	tac	ggc	gtg	cgg	tac	aac	acc	aca	aac	aat	ggc	tac	agg	gaa
Tyr	Phe	Tyr	Gly	Val	Arg	Tyr	Asn	Thr	Thr	Asn	Asn	Gly	Tyr	Arg	Glu
		80		85				90							410
tgc	ctc	gct	aac	ggg	agc	tgg	gca	gca	cgg	gtc	aac	tac	tcc	cag	tgc
Cys	Leu	Ala	Asn	Gly	Ser	Trp	Ala	Ala	Arg	Val	Asn	Tyr	Ser	Gln	Cys
		95		100				105							458
cag	gag	atc	ctc	agt	gag	gag	aag	agg	agc	aag	ctg	cac	tac	cac	atc
Gln	Glu	Ile	Leu	Ser	Glu	Glu	Lys	Arg	Ser	Lys	Leu	His	Tyr	His	Ile
		110		115				120							506
gct	gtc	atc	atc	aac	tac	ctg	ggg	cac	tgc	gtc	tcg	ctg	ggg	acc	ctc
Ala	Val	Ile	Ile	Asn	Tyr	Leu	Gly	His	Cys	Val	Ser	Leu	Gly	Thr	Leu
		125		130				135							554
ctt	gtg	gcc	ttc	gtc	ctc	ttc	atg	cgc	ctg	cgg	agc	atc	cgg	tgc	ttg
Leu	Val	Ala	Phe	Val	Leu	Phe	Met	Arg	Leu	Arg	Ser	Ile	Arg	Cys	Leu
		140		145				150			155				602
agg	aac	atc	atc	cac	tgg	aac	ctg	atc	aca	gcc	ttc	atc	cta	cgc	aat
Arg	Asn	Ile	Ile	His	Trp	Asn	Leu	Ile	Thr	Ala	Phe	Ile	Leu	Arg	Asn

160	165	170	
gcc acg tgg ttt gtg gtg cag ctc acg atg aac cca gag gtg cac gag Ala Thr Trp Phe Val Val Gln Leu Thr Met Asn Pro Glu Val His Glu 175	180	185	698
agc aac gtg gtc tgg tgc cgc ttg gtc act gct gcc tac aat tac ttc Ser Asn Val Val Trp Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe 190	195	200	746
cat gtc acc aac ttc ttc tgg atg ttt ggc gag ggc tgc tac ctg cac His Val Thr Asn Phe Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His 205	210	215	794
aca gcc atc gtc ctc acc tat tcc acc gac aag ctc cgc aag tgg atg Thr Ala Ile Val Leu Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Met 220	225	230	842
ttc atc tgc att ggc tgg tgt atc ccc ttt ccc atc att gtc gcc tgg Phe Ile Cys Ile Gly Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp 240	245	250	890
gcc atc ggg aag ctg tac tac gac aac gag aag tgc tgg ttt ggg aag Ala Ile Gly Lys Leu Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys 255	260	265	938
cga gca gga gtt tat act gac tac atc tat caa ggt ccc atg atc ctg Arg Ala Gly Val Tyr Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu 270	275	280	986
gtg ctt ctg atc aac ttc atc ttt ctg ttc aac att gtt cg att ctc Val Leu Leu Ile Asn Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu 285	290	295	1034
atg acc aag ctc cga gca tca acc acg tca gag aca atc cag tac aga Met Thr Lys Leu Arg Ala Ser Thr Ser Glu Thr Ile Gln Tyr Arg 300	305	310	1082
aaa gca gtc aag gct acg ctg gtg ctg ctg tcc ttg ctg gga atc acc Lys Ala Val Lys Ala Thr Leu Val Leu Leu Ser Leu Leu Gly Ile Thr 320	325	330	1130
tac atg ctg ttc ttt gtc aat ccg ggg gag gat gag atc tcc agg atc Tyr Met Leu Phe Phe Val Asn Pro Gly Glu Asp Glu Ile Ser Arg Ile 335	340	345	1178
gtc ttc atc tac ttc aac tcc ttc ctg gag tcc ttc cag ggc ttc ttt Val Phe Ile Tyr Phe Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe 350	355	360	1226
gtc tct gtc ttc tac tgc ttc ctg aac agc gag gtg cgt tcg gct gtg Val Ser Val Phe Tyr Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Val 365	370	375	1274
cgg aag cgg tgg cac cga tgg cag gac aag cac tcc atc cgc gct cgg Arg Lys Arg Trp His Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg 380	385	390	1322
gtg gct cgg gcc atg tcc atc ccc acc tcc cca acc cgg gtc agc ttc Val Ala Arg Ala Met Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe 400	405	410	1370

cac agc atc aag cag tcc tca gca gtg tga ggcaggagga ggcagctgcc ga 1422  
His Ser Ile Lys Gln Ser Ser Ala Val  
415 420

<210> 42  
<211> 420  
<212> PRT  
<213> Gallus gallus

<400> 42

Met Val Pro Gly Pro Arg Pro Ala Leu Leu Leu Leu Leu Phe Leu Leu  
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Gln Ala Phe Leu Leu Trp Asp Ser Pro Val Ala Ala Ser Ile Gln Glu  
20 25 30

Gln Tyr Cys Glu Ser Leu Leu Pro Thr Thr Asn His Thr Gly Pro Gln  
35 40 45

Cys Asn Ala Ser Val Asp Leu Ile Gly Thr Cys Trp Pro Arg Ser Ala  
50 55 60

Val Gly Gln Leu Val Ala Arg Pro Cys Pro Glu Tyr Phe Tyr Gly Val  
65 70 75 80

Arg Tyr Asn Thr Thr Asn Asn Gly Tyr Arg Glu Cys Leu Ala Asn Gly  
85 90 95

Ser Trp Ala Ala Arg Val Asn Tyr Ser Gln Cys Gln Glu Ile Leu Ser  
100 105 110

Glu Glu Lys Arg Ser Lys Leu His Tyr His Ile Ala Val Ile Ile Asn  
115 120 125

Tyr Leu Gly His Cys Val Ser Leu Gly Thr Leu Leu Val Ala Phe Val  
130 135 140

Leu Phe Met Arg Leu Arg Ser Ile Arg Cys Leu Arg Asn Ile Ile His  
145 150 155 160

Trp Asn Leu Ile Thr Ala Phe Ile Leu Arg Asn Ala Thr Trp Phe Val  
165 170 175

Val Gln Leu Thr Met Asn Pro Glu Val His Glu Ser Asn Val Val Trp  
180 185 190

Cys Arg Leu Val Thr Ala Ala Tyr Asn Tyr Phe His Val Thr Asn Phe  
195 200 205

Phe Trp Met Phe Gly Glu Gly Cys Tyr Leu His Thr Ala Ile Val Leu  
210 215 220

Thr Tyr Ser Thr Asp Lys Leu Arg Lys Trp Met Phe Ile Cys Ile Gly  
225 230 235 240

Trp Cys Ile Pro Phe Pro Ile Ile Val Ala Trp Ala Ile Gly Lys Leu  
245 250 255

Tyr Tyr Asp Asn Glu Lys Cys Trp Phe Gly Lys Arg Ala Gly Val Tyr  
260 265 270

Thr Asp Tyr Ile Tyr Gln Gly Pro Met Ile Leu Val Leu Leu Ile Asn  
275 280 285

Phe Ile Phe Leu Phe Asn Ile Val Arg Ile Leu Met Thr Lys Leu Arg  
290 295 300

Ala Ser Thr Thr Ser Glu Thr Ile Gln Tyr Arg Lys Ala Val Lys Ala  
305 310 315 320

Thr Leu Val Leu Leu Ser Leu Leu Gly Ile Thr Tyr Met Leu Phe Phe  
325 330 335

Val Asn Pro Gly Glu Asp Glu Ile Ser Arg Ile Val Phe Ile Tyr Phe  
340 345 350

Asn Ser Phe Leu Glu Ser Phe Gln Gly Phe Phe Val Ser Val Phe Tyr  
355 360 365

Cys Phe Leu Asn Ser Glu Val Arg Ser Ala Val Arg Lys Arg Trp His  
370 375 380

Arg Trp Gln Asp Lys His Ser Ile Arg Ala Arg Val Ala Arg Ala Met  
385 390 395 400

Ser Ile Pro Thr Ser Pro Thr Arg Val Ser Phe His Ser Ile Lys Gln  
405 410 415

Ser Ser Ala Val  
420

<211> 38  
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<400> 43

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Glu Gln Ala Arg Tyr Lys Ala Ala Arg Asn Gln Ala Ala Thr Asn Ala  
20 25 30

Gln Ile Leu Ala His Val  
35

<210> 44  
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<213> Homo sapiens

<400> 44

Ile Val Leu Ser Leu Asp Val Pro Ile Gly Leu Leu Gln Ile Leu Leu  
1 5 10 15

Glu Gln Ala Arg Ala Arg Ala Ala Arg Glu Gln Ala Thr Thr Asn Ala  
20 25 30

Arg Ile Leu Ala Arg Val  
35